



UNITED STATES AIR FORCE
45th Space Wing



**ENVIRONMENTAL ASSESSMENT
FOR
920th Rescue Group
301st and 39th Rescue Squadrons
Patrick Air Force Base, Florida**

October 2003

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ENVIRONMENTAL ASSESSMENT

Search and Rescue Training

HH-60 and HC-130

920th Rescue Group

301st and 39th Rescue Squadrons

Patrick Air Force Base, Florida



Prepared For:

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FINDING OF NO SIGNIFICANT IMPACT (FONSI) FOR THE ENVIRONMENTAL ASSESSMENT FOR THE TRAINING OF THE 920th RESCUE GROUP, 301ST AND 39TH RESCUE SQUADRONS, PATRICK AIR FORCE BASE, FLORIDA

PROPOSED ACTION:

The purpose of the proposed action is to allow the 920th Rescue Group (RQG) to continue to use historical land drop zones (DZs), water training areas (WTAs), helicopter air refueling tracks, and a live fire munitions training area in order to achieve the highest degree of combat readiness consistent with flight safety and resource availability. Training activities would continue to occur in established areas at Patrick Air Force Base (PAFB), Cape Canaveral Air Force Station (CCAFS), Avon Park Air Force Range (APAFR), Tosohatchee State Reserve (TSR), the Banana River, and the Atlantic Ocean.

In accordance with Code of Federal Regulations 32 Part 989 (*Environmental Impact Analysis Process*, July 1999), the 920th RQG has requested the U. S. Air Force (USAF), 45th Space Wing (45SW) to conduct an environmental impact analysis of their Proposed Action on PAFB, CCAFS, APAFR, TSR, the Banana River, and the Atlantic Ocean in Florida. This Environmental Assessment (EA) (attached) was conducted in accordance with Air Force Instruction (AFI) 32-7061 (*The Environmental Impact Analysis Process*, January 1995), as promulgated in 32 CFR Part 989, and the National Environmental Policy Act (NEPA) of 1969 (Public Law 91-190, 42 United States Code) (U.S.C. §~4321-4347) and constitutes the 920th RQGs compliance with these requirements.

BACKGROUND:

Patrick Air Force Base is located on a barrier island on the central east coast of Florida, south of the city of Cocoa Beach. The main base covers approximately 1,937 acres (784 hectares) and is bounded by the Atlantic Ocean on the east and the Banana River on the west, the city of Cocoa Beach to the north, and the unincorporated area of South Patrick Shores to the south. The base serves as the headquarters for 45SW operations and home to the 920th RQG.

CCAFS occupies 15,804 acres of the barrier island located along the east-central coast of Florida. The Installation is bounded on the north by the John F. Kennedy Space Center, a National Aeronautics and Space Administration Installation, on the west by the Banana River, on the south by Port Canaveral, and on the east by the Atlantic Ocean.

Avon Park Air Force Range is a 106,000-acre (42,897 hectares) bombing and gunnery range located in Polk and Highland Counties, Florida, approximately 57 miles (92 km) WSW of PAFB. It provides a variety of air-to-ground targets in support of air and ground operations. The site is home to a Deployed Unit Complex (DUC) of the 347WG Detachment 1, a unit of the 347th Wing located at Moody Air Force Base in Georgia.

Tosohatchee State Reserve is located in eastern Orange County, Florida, approximately 27 miles (43 km) NW of PAFB and encompasses approximately 34,000 acres (13,759 hectares). It is bounded between the St. John's River, State Road 50, and State Road 520. The State of Florida purchased the land in 1977 as environmentally sensitive land. Community types include marshes, swamps, pine flatwoods, and hardwood hammocks.

The Banana River is located between the western barrier island of Merritt Island and the eastern barrier island that is composed of Cape Canaveral, Cocoa Beach, Satellite Beach, and Indian Harbor Beach. The State of Florida designates the Banana River as Class III waters (recreation, fish and wildlife management). An integral part of the Indian River Lagoon (IRL) Estuary, it is one of the three basins (Mosquito Lagoon, Banana River Lagoon and North and South Indian River Lagoon) that comprise the system. The entire Banana River is also designated as an Aquatic Preserve (FAC 62-302.700) and categorized as Florida Outstanding Waters.

The Atlantic Ocean borders the eastern shore of Florida. Local circulation is composed of a constant south to north current approximately 18 miles (30 km) offshore, and a fluctuating current near shore. The offshore current (Gulf Stream) is mainly driven by the North Atlantic gyre. The near-shore current is mainly wind driven and can fluctuate in speed and direction on a daily or hourly basis.

The proposed training is needed to maintain the combat readiness of the 920th RQG as directed by the Joint Chiefs of Staff. The proposed action would best meet that need by continuing the use of WTAs in the Banana River, the Atlantic Ocean, land DZs at PAFB, CCAFS, TSR, and APAFR, munitions training at APAFR, and air refueling tracks.

ALTERNATIVES CONSIDERED:

Other than the Preferred Alternative (continue the use of past LZs, DZs, WTAs, munitions training areas, and air refueling tracks), alternatives considered included locations other than the preferred and historically used at PAFB, CCAFS, in the Atlantic Ocean, the Banana River, APAFR, and TSR. Those alternatives were eliminated from consideration when the selection criteria of the 920th RQG were applied.

Selection criteria were applied to identify reasonable DZs, LZs, WTAs, helicopter air refueling tracks, and munitions training areas, and to assess the alternatives that would meet the purpose and need of the proposed action. By all criteria, the historically used DZs, LZs, WTAs, and munitions training area best meet the needs of the 920th RQG. Therefore, the remaining alternatives were eliminated from further discussion in the environmental assessment.

ENVIRONMENTAL EFFECTS:

Eleven broad environmental components were considered to provide a context for understanding the potential effects of the Proposed Action and a basis for assessing the significance of potential impacts. The areas of environmental consideration are airspace, noise, water quality, biological resources, safety, aesthetics, land use, air quality, hazardous wastes, munitions training, and cultural resources. No significant impacts to any of these environmental resources considered in this EA are anticipated. Minor impacts and mitigation measures have been identified for biological resources per consultation under Section 7 of the Endangered Species Act as well as the Magnuson-Stevens Fishery Conservation and Management Act.

Mitigation measures for biological resources were identified by the United States Fish and Wildlife Service and the National Marine Fisheries Service to include use of a standard operating procedure for pilots to require sweeps of the area via helicopter or with the associated recovery boat prior to commencement of operations. The primary goal of the sweep is to ensure that the target area is clear of fishermen or any other persons, but also incorporates a visual inspection for protected species. If a protected species is seen in the drop zone, operations do not commence until the animal(s) have moved outside of these ranges. Observant boat operators running at recommended speeds within each zone should reduce risks of boat strikes to marine species.

Recovery of deployed items such as lightsticks and other training items at the end of the exercise will further mitigate any impacts to biological resources. The 920th RQG will continue to provide AF Form 813's to OLA/CEVN for training exercises at APAFR. Therefore, potential effects to environmental resource topics such as protected species in this location will be addressed on a case by case basis.

CONCLUSION:

Based on the findings of this EA, and in accordance with 32 CFR Part 989, the proposed 920th RQG training qualifies for a Finding of No Significant Impact; therefore, an Environmental Impact Statement is not required.

Approved: _____

Date: _____

J. GREGORY PAVLOVICH

Brigadier General, USAF

Commander

Executive Summary

INTRODUCTION

This environmental assessment evaluates the continued use of land and water sites for combat and rescue training operations for the 920th Rescue Group (RQG). The 920th RQG sites include locations at Patrick Air Force Base (PAFB), Cape Canaveral Air Force Station (CCAFS), Avon Park Air Force Range (APAFR), Tosohatchee State Reserve (TSR), the Atlantic Ocean, and the Banana River. This Environmental Assessment was prepared by the U.S. Air Force in accordance with the National Environmental Policy Act (NEPA), the Council on Environmental Quality (CEQ) regulations implementing NEPA, and 32 CFR (Code of Federal Regulation) Part 989, Environmental Impact Analysis Process (EIAP).

DESCRIPTION OF THE PROPOSED ACTION

The United States Air Force (USAF), 920th RQG proposes to continue the use of: 1) established land drop zones (DZ) and landing zones (LZ) at PAFB, CCAFS, APAFR, and TSR in Florida; 2) water training areas (WTAs) in the Atlantic Ocean and the Banana River; and 3) gunnery exercises at APAFR to maintain combat readiness.

ALTERNATIVES TO THE PROPOSED ACTION

The alternative to the proposed action analyzed in this environmental assessment was the 'no action' alternative. The training described is necessary to maintain combat readiness, and also to maintain proficiency for the 920th RQG's peacetime, on-going mission to support NASA's Astronaut Search and Rescue Mission.

Other alternatives considered but eliminated from further analysis included alternate training locations. These alternate sites were not analyzed due to the strict criteria required for search and rescue training.

METHODOLOGY

A previously written and approved Environmental Assessment for training activities nearly identical to those proposed by the 920th RQG was reviewed by the authors of this document. *The Environmental Assessment for Search and Rescue Training, HH-60 and HC-130 Rescue Squadrons, Moody AFB, Georgia* discusses the establishment of water training areas in the Gulf of Mexico for the 41st and 71st Rescue Squadrons (RQS) of the Air Force. This EA provided a context for understanding the potential effects of the Proposed Action and provided a basis for assessing the significance of potential impacts. The areas of environmental consideration were air space, noise, water quality, biological resources, safety, aesthetics, socioeconomics, land use, air quality, hazardous

materials and wastes, and cultural resources. To assess the significance of environmental impacts, the activities necessary to accomplish the Proposed Action were evaluated within the Region of Influences.

The environmental settings were reviewed and described and those activities with the potential for significant environmental consequences were identified. The significance criteria used to evaluate the environmental effects of the proposed activities include three levels of impacts: no impact, no significant impact, and significant impact.

Aspects that will not be affected by the proposed action will not be discussed in this Environmental Assessment. These aspects are utilities, transportation, topography/geology/soils, and traffic.

RESULTS

This section summarizes the conclusions of the analyses made for each of the nine areas of environmental consideration based on the application of the above-described methodology.

No impacts were ascertained for airspace, safety, air quality, land use, hazardous materials, and cultural resources.

Resources with minimal impacts include noise, water quality, and aesthetics.

The proposed action could result in impacts to aquatic biological resources. However, these impacts may be avoided by implementing measures such as visual sweeps of training areas before commencement of the exercise and recovery of expendables deployed, and protected species awareness training for all 920th RQG personnel involved in the training exercise.

CONCLUSION

The Proposed Action is not anticipated to produce significant environmental impacts. Mitigation measures have been identified for biological resources.

Matrix of Potential Impacts to Each Resource by the Proposed Action

Training Areas	Resource Topics									
	Airspace	Noise	Water Quality	Biological Resources	Safety	Aesthetics	Lane Use	Air Quality	Hazardous Materials & Wastes	Cultural Resources
DZ Rick Smith	o	o	•	•	o	o	o	o	o	o
DZ Bill Sutton	o	o	•	•	o	o	o	o	o	o
DZ Ronnie Cavallo	o	o	•	•	o	o	o	o	o	o
WTA Area WP44	o	o	•	•	o	o	o	o	o	o
WTA Area WP45	o	o	•	•	o	o	o	o	o	o
DZ Judy	o	o	•	•	o	o	o	o	o	o
DZ Bam Bam	o	o	o	o	o	o	o	o	o	o
DZ Hardluck	o	o	o	o	o	o	o	o	o	o
DZ Ferreira	o	o	o	o	o	o	o	o	o	o
TSR Landing Zones	o	o	o	o	o	o	o	o	o	o
APAFR Landing Zones	o	o	o	o	o	o	o	o	o	o
AR Track Marian	o	o	o	o	o	o	o	o	o	o
AR Track 15 Victor	o	o	o	o	o	o	o	o	o	o
Classifications : o No impacts • Potential impacts										

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1.0 INTRODUCTION: PURPOSE AND NEED FOR ACTION

The requirement for this Environmental Assessment (EA) was determined by 45SW/CEV, in Air Force (AF) Form 813 dated 25 September 01 (Appendix 1). This EA constitutes the AF's compliance with 32 Code of Federal Regulation (CFR) Part 989 and the National Environmental Policy Act of 1969 (NEPA) (Public Law 91-190, 42 United States Code) (U.S.C. §§4321-4347).

The Council on Environmental Quality (CEQ) regulation 1502.21 states that "Agencies shall incorporate material into an environmental impact statement by reference when the effect will be to cut down on bulk without impeding agency and public review of the action. The incorporated material shall be cited in the statement and its content briefly described." In accordance with this regulation, references are made throughout this Environmental Assessment to the *Final Environmental Assessment for Search and Rescue Training, HH-60 and HC-130 Rescue Squadrons, Moody AFB, Georgia, 1999*, hereinafter referenced as USAF 1999. It is found online at <http://www.cevp.com/docs/RQSFea/RQSFea.pdf>. This EA discusses the establishment of water training areas in the Gulf of Mexico for the 41st RQS and 71st RQS of the Air Force. These areas are used for combat search and rescue training, helicopter air refueling tracks for training and operational refueling with HC-130 aircraft. Use of an existing airfield in the vicinity of the water training area (WTA) for helicopter crew swaps was also evaluated. Numerous similarities exist between the activities of the 41st and 71st RQS at Moody AFB and the 920th RQG at Patrick Air Force Base (PAFB). Therefore, to avoid lengthy descriptions of issues previously evaluated and approved, including a signed Finding of No Significant Impact (FONSI), reference will be made throughout this document to applicable sections of the Moody EA (USAF 1999).

Training activities conducted at Avon Park Air Force Range (APAFR) have been previously evaluated in the *Final Environmental Assessment for the Conversion of the 8-Inch Howitzer Weapon System to the Multiple Launch Rocket System in the Florida Army National Guard 3rd Battalion, 116th Field Artillery*. Potential impacts resulting from the training of the Florida Army National Guard for the Multiple Launch Rocket System (MLRS) at Avon Park Air Force Range, Florida were evaluated in this EA. This Environmental Assessment will also be cited throughout this document as FLARNG 1997 and is available through the Environmental Planning/Natural Resources Office, 347 RQW, Det 1, OLA/CEVN at APAFR.

1.1 Proposed Action

The 920th Rescue Group (RQG) proposes the continued use of existing land drop zones, water training areas, air refueling tracks, and a live fire munitions training area in order to achieve the highest degree of combat readiness consistent with flight safety and resource availability.

Successful training includes aerial refueling for extended ranges required for survivable combat rescue missions. Water operations, conducted during the day or night, are vital to both combat and peacetime rescue capability due to the vast expanse of water and guaranteed U.S. control of any contested area. Munitions training is essential for combat rescue missions as well.

The 920th RQG was derived from the 301st Rescue Squadron, the Air Force Reserve's first search and rescue unit. It was activated in August 1956 at the Miami International Airport. In 1960, expanding mission requirements prompted relocation of the unit to Homestead Air Force Base, Florida. On August 24, 1992, immediately following Hurricane Andrew's destruction of south Dade county and the unit's Homestead AFB facilities, the 301st temporarily relocated to Miami's Tamiami Airport, and then moved to PAFB in January 1993. The unit became an official tenant of PAFB in November of that year. The 301st Rescue Squadron was designated the 920th Rescue Group on July 12, 1997. During its 45-year history, the unit has flown SA-16 aircraft, H34, HH-1 and H-3 helicopters before receiving its present complement of HC-130s and HH-60s.

The 920th RQG is under the command of the 939th Rescue Wing, Portland International Airport, Oregon. There are six subordinate units as well as the Group headquarters staff. These include:

- 39th Rescue Squadron (HC-130 Lockheed "Hercules" aircraft)
- 301st Rescue Squadron (HH-60G Sikorsky "Pave Hawk" helicopters)
- 920th Aeromedical Staging Squadron
- 920th Maintenance Squadron
- 920th Operations Support Flight
- 920th Mission Support Flight

1.2 Need for Action

The primary mission of the 920th RQG is to perform combat rescue missions through search, location, and recovery of USAF and other Department of Defense (DoD) personnel involved with United States defense activities.

The unit is also part of the Department of Defense Manned Space flight team that provides rescue support for National Aeronautics and Space Administration's (NASAs) space shuttle operations, and is primarily responsible for surveillance of the Eastern Test Range during all manned and unmanned launches from the Kennedy Space Center and Cape Canaveral Air Force Station. Since the first

Mercury capsule launched in 1961, the 301st (predecessor to the 920th RQG) has had a recurring role in astronaut rescue contingency operations for this program.

The 920th RQG also provides search and rescue support for civilians as directed by the Air Force Rescue Coordination Center, and provides humanitarian and disaster relief operations at the request of foreign governments and International Civil Aviation Organizations.

Collectively, the 920th RQG and its predecessor designations have been credited with saving more than 700 people and assisting in the rescue efforts of numerous others.

Enhanced training is necessary to maintain the combat readiness of the 920th RQG as directed by the Joint Chiefs of Staff. The proposed action would best meet that need by continuing the use of water training areas in the Banana River and the Atlantic Ocean and land drop zones at PAFB, Cape Canaveral Air Force Station (CCAFS), Tosohatchee State Reserve (TSR), and APAFR.

1.3 Project Objectives

The 920th RQG must conduct training operations in a true setting to maintain their combat ready status for rescue missions. The proposed action is to allow the continued use of historical landing zones, drop zones, WTAs, and a munition training area.

1.4 Laws and Regulations that Influence the Scope of this EA

The Final Environmental Assessment for Search and Rescue Training, HH-60 and HC-130 Rescue Squadrons, Moody AFB, Georgia, 1999 and the Final Environmental Assessment for the Conversion of the 8-Inch Howitzer Weapon System to the Multiple Launch Rocket System in the Florida Army National Guard 3rd Battalion, 116th Field Artillery, 1997 influenced the required level of analysis of this EA through prior NEPA documentation of similar training activities.

The Biological Assessment for Ongoing Ordnance Delivery at Bombing Target 9 and Bombing Target 11, prepared by Marine Corps Air Station Cherry Point in December 2001 (MCASCP 2001), evaluated impacts to threatened and endangered marine species in the general area of bombing targets. Subsequently, a Biological Opinion was issued by the Southeast Regional Office of the National Marine Fisheries Service for this activity. References are made in this document to this Biological Assessment and Biological Opinion.

A variety of laws, regulations, executive orders (EOs), and other types of requirements apply to federal actions and form the basis of the analysis presented in this EA. These include NEPA; 32 CFR Part 989, Environmental Impact Analysis Process (EIAP); the Endangered Species Act (ESA); the Marine

Mammal Protection Act; the Clean Water Act; EO 11514, Protection and Enhancement of Environmental Quality; and Magnuson-Stevens Fisheries Conservation and Management Act.

1.5 Decision To Be Made

The decision to be made is whether to allow the continued use of 920th RQG drop zones (DZs), landing zones (LZs), water training areas (WTAs), and a munitions training area with histories of prior use.

1.6 Major Relevant Issues

Use of the WTA's in the Atlantic Ocean and the Banana River may have the potential to impact threatened and endangered species including the right whale; West Indian manatee; loggerhead, green, and leatherback sea turtles. These animals are known to utilize and pass through these areas during migration. Water training areas also fall within areas of Essential Fish Habitat (EFH).

1.7 Federal, State, and Local Permits Required

It is unlikely that any permits are required for the proposed action. Consultations were conducted with the National Marine Fisheries Service (NMFS) to evaluate potential impacts to right whales, marine turtles, and EFH for the continued use of the drop zones in the Atlantic Ocean and Banana River. NMFS concurred with the USAF that that 920th RQG activities are not likely to cause a significant adverse effect to any listed species or EFH as long as pre-exercise wildlife sweeps are conducted and all supplies are collected from the water to the greatest extent practicable. New consultation with NMFS would be required if there was a take during exercises, new actions were proposed that may affect listed species or EFH, or if critical habitat may be affected. These consultations are included in Appendix 2 of this document.

Consultation was also conducted with the U.S Fish and Wildlife Service (USFWS) regarding manatees in the Banana River. In March 2001 the USAF initiated Section 7 consultation with the USFWS for limited use of DZ Judy for 920th RQG operations. At that time, the USAF confirmed that all surface vehicles operate at minimum safe speeds while within the boundary of DZ Judy, and manatee awareness training is conducted with all 920th RQG aircrew and pararescuers. The USAF reinitiated consultation with the USFWS in June 2001 when it was determined that DZ Judy would be used more frequently. The USFWS agreed with the USAF determination that continued 920th RQG operations in DZ Judy would not adversely impact manatees provided the stated precautions were taken. This informal consultation fulfilled the requirements of the ESA. The aforementioned consultation from June 2001 is included in this document in Appendix 2.

After review of the final draft of this document, the St. Johns River Water Management District stated that an Environmental Resource Permit may be

required for the proposed activities. Since the proposed action does not involve any construction or ground disturbance, it is unlikely that a permit will be required.

The Marine Corps Air Station of Cherry Point, North Carolina initiated consultation with the National Marine Fisheries Service, Southeast Regional Office, in 2002 for use of two bombing targets in Pamlico Sound, North Carolina (Appendix 5). The locations are used for training military personnel in the field of ordnance delivery by aircraft and sometimes small watercraft to a target. In that project, listed species and critical habitat are present near the action area. An Incidental Take Statement was issued for sea turtle species in that area.

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2.0 PROPOSED ACTION AND ALTERNATIVES

The following describes the actions and training areas used by the 920th RQG and the alternatives considered in this Environmental Assessment.

2.1 DESCRIPTION OF PROPOSED ACTION

The USAF (920th RQG) proposes to continue water training operations in the Banana River and the Atlantic Ocean; utilizing LZs and DZs at PAFB, CCAFS, TSR, and APAFR; using air refueling (AR) tracks over the Atlantic Ocean and APAFR; and performing munitions testing at APAFR. Landing zones are areas that can support the landing of the aircraft. Drop zones are areas where expendables and/or personnel are dropped from the aircraft. AR Tracks are designated flight paths used for fueling the HH-60 helicopters and involve the C-130's and HH-60's flying in close proximity to one another.

The proposed action would not require any new facility construction or renovation, and there would be no requirement for additional aircraft or personnel for the 920th RQG. The 920th RQG includes the 301st RQS and the 39th RQS. The training actions of each squadron will be described separately below.

2.2 TRAINING AREAS

This EA analyzes the potential environmental effects that could result from the continued use of LZs, DZs, WTAs, helicopter AR tracks, and live fire munitions training areas by the Proponent. The environmental resource areas analyzed herein reflect the unique features and the environmental setting of PAFB, CCAFS, TSR, APAFR, the Banana River, and a small section of the Atlantic Ocean.

Patrick Air Force Base is located on a barrier island on the central east coast of Florida, south of the city of Cocoa Beach (Figure 1). The main base covers approximately 1,937 acres (784 hectares) and is bounded by the Atlantic Ocean on the east and the Banana River on the west, the city of Cocoa Beach to the north, and the unincorporated area of South Patrick Shores to the south. The base serves as the headquarters for 45th Space Wing (45SW) operations and home to the 920th RQG.

Cape Canaveral Air Force Station occupies 15,804 acres (6,396 hectares) of the barrier island on the east-central coast of Florida (Figure 1). The Installation is bounded on the north by the John F. Kennedy Space Center (KSC), a National Aeronautics and Space Administration (NASA) Installation, on the west by the Banana River, on the south by Port Canaveral, and on the east by the Atlantic Ocean. The nearest civilian community to CCAFS is the City of Cape Canaveral, located south of Port Canaveral. The Installation provides launching services for 45SW customers, including Lockheed Martin, Boeing, and Florida Space Authority. CCAFS is located approximately 20 miles (32 km) north of PAFB.

Avon Park Air Force Range is a 106,000-acre (42,897 hectares) bombing and gunnery range located in Polk and Highland Counties, Florida, approximately 57 miles (92 km) WSW of PAFB (Figure 1). It provides a variety of air-to-ground targets in support of air and ground operations. The site is home to a Deployed Unit Complex (DUC) of the 347WG Detachment 1, a unit of the 347th Wing located at Moody Air Force Base in Georgia.

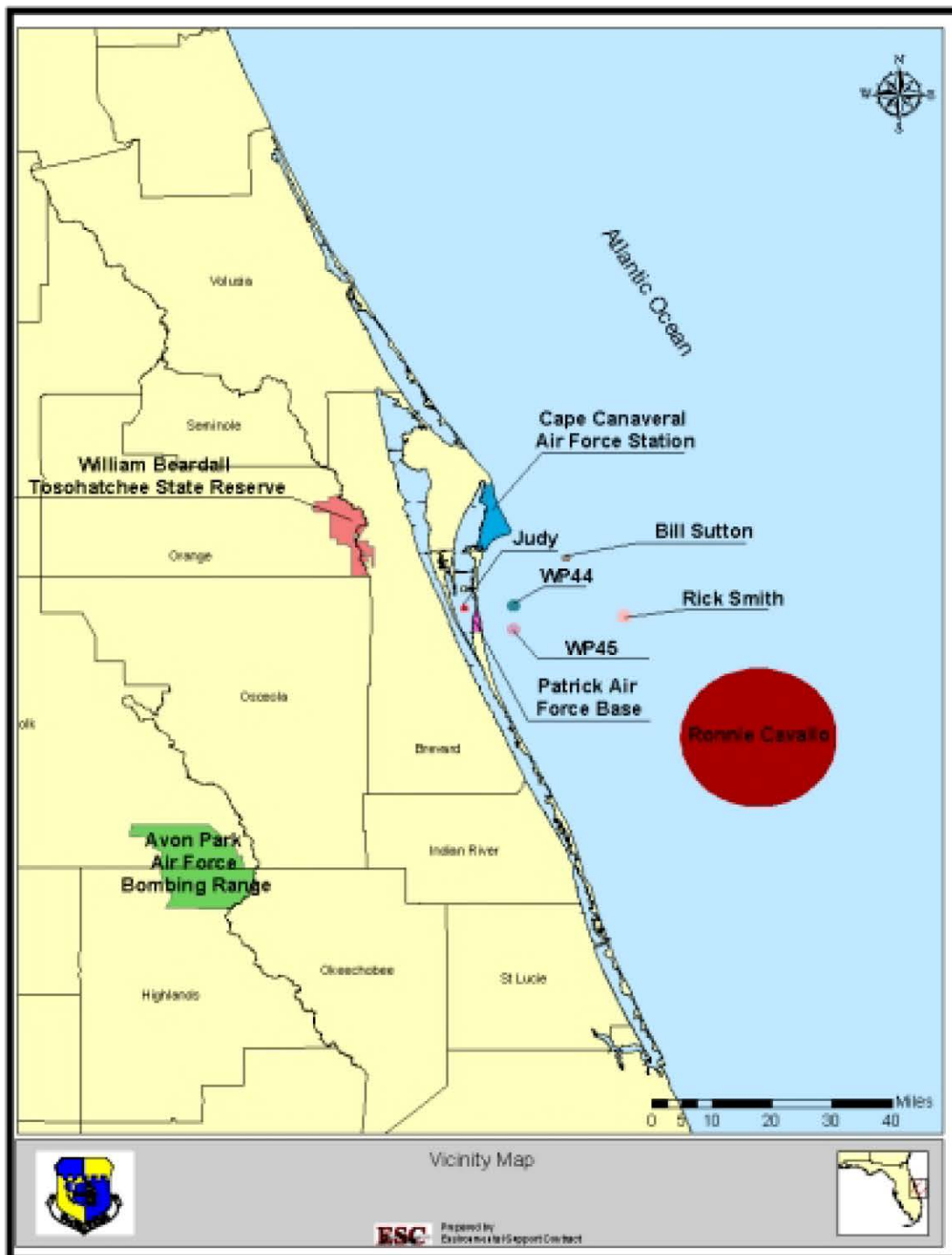
Tosohatchee State Reserve is located in eastern Orange County, Florida, approximately 27 miles (43 km) NW of PAFB and encompasses approximately 34,000 acres (13,759 hectares) (Figure 1). It is bounded between the St. John's River, State Road 50, and State Road 520. The State of Florida purchased the land in 1977 as environmentally sensitive land. Community types include marshes, swamps, pine flatwoods, and hardwood hammocks. Tosohatchee Creek, from which the reserve takes its name, flows through the northern area of the reserve and joins the St. John's River, which forms the reserve's eastern border.

Water training area Cavallo encompasses a large open ocean area (10 nautical miles) in diameter) (Figure 2). The northern end of this large training zone is due east of Melbourne Beach and the southern boundary is due east of Sebastian Inlet. A significant depth gradient occurs from west to east below Cavallo, with waters ranging from 31 to 153 fathoms (186-900ft). Within the WTA is the southern end of a live bottom formation referred to as The Cones and popular fishing spot known as Catris 240 ft Reefs. These areas are known for good fishing for wahoo (*Acanthocybium solanderi*), dolphin (*Coryphaena hippurus*), sailfish (*Istiophorus platypterus*), and amberjack (*Seriola* sp.). Sargassum mats are often found adrift in this area.

Water training area Bill Sutton is approximately 11nm east of the City of Cape Canaveral in waters that average 9 fathoms deep (36ft). It is located about 5 nm SSE of a popular fishing area called Southeast Shoal Ledges. The area is known for catches of kingfish (*Menticirrhus* sp.), snapper (*Lutjanus* sp) and grouper (*Epinephelus* sp.). WTA Sutton is also about 5nm WNW of a diving spot called Tiger Red Wreck.

Water training area Rick Smith is about 18 nm east of PAFB and less than 1 nm west of the popular fishing area called Pelican Flats (Figure 2). Water depths are fairly constant here at about 13 fathoms (80 ft). Pelican Flats is visited daily by commercial and recreational fishing boats and is known for catches of kingfish, sailfish, cobia (*Rachycentron canadum*), dolphin, wahoo and snapper. Sargassum mats are often found floating at the surface in this area.

Figure 1. Vicinity Map



Drop zone Judy in the Banana River is part of the Indian River Lagoon System and extends from Eau Gallie Causeway at the southern end where it intercepts the Indian River and terminates approximately 20 miles (32 km) to the north within the Merritt Island National Wildlife Refuge and Kennedy Space Center properties (Figure 2). The river is a wind-driven, shallow estuary bounded on the east by barrier islands and to the west by the Florida mainland. The Banana River surface waters are categorized as Class III based on the Clean Water Act and much of it is designated as Outstanding Florida Water (FAC62-3, EELV 1998).

Air refueling track 15 Victor overlies the Atlantic Ocean adjacent to PAFB and CCAFS (Figure 6). Refueling takes place at 2,000 ft AGL (610 m) except when limited by weather conditions, such as low clouds, in which case the aircraft would drop to an altitude between 500 and 1,500 ft (152 m and 457 m) AGL.

Air refueling track Marian overlies Okeechobee and Osceola Counties near APAFR in Florida (Figure 6). Land beneath the tracks consists of roads and rural areas. Refueling takes place at 2,000 ft AGL (610 m) except when limited by weather conditions, such as low clouds, in which case the aircraft would drop as described above.

2.2.1 301st Rescue Squadron

The 301st Rescue Squadron performs three types of training operations with HH-60 helicopters consisting of water, landing, and gunnery operations. Each is described in more detail below.

2.2.1.1 Water Operations

Water operations (WOPs) associated with the HH-60 helicopters will continue in the following locations during either day and night:

- 301st WOPs areas referred to as WP44 and WP45 are located in the Atlantic Ocean, approximately 5 miles (8 km) east of PAFB (Figure 2). These WTAs were adopted by the 301st when they officially became a tenant of PAFB in 1993. Altitude during training events is 0 to 150 feet (45 m) above ground level (AGL). Airspeed is between 0 and 100 knots, and training events last approximately one hour. Frequency of use is approximately 16 sorties per month. A sortie consists of a single military aircraft flight from takeoff through landing. Normal 301st RQS WOPs place the first helicopter on the 070-degree radial for four miles from PAFB and the second helicopter on the 120-degree radial for four miles. To complete a WOPs training pattern, each helicopter operates within a two-mile radius of an intended “hover point,” simulating the rescue of a pilot floating at sea. During some training operations, pararescuers jump out of the helicopter to perform simulated

search and rescue operations. The pararescuers would be dropped at an altitude of approximately 10 feet above water level (AWL). Personnel drops and pickups associated with pararescue training operations would be practiced using rope, rappel, and ladders while the helicopter hovers at 10 to 50 feet (3 to 15 m) above MSL. Aircrews would make every reasonable effort to avoid contact or interaction with marine fauna in the water training area.

- Drop zone Judy is located in the Banana River approximately 1.5 nautical miles (2.7 km) northwest of PAFB. This WTA was taken over by the 301st when they officially became a tenant of PAFB in 1993 (Figure 2). Areas WP44 and WP45 are the preferred locations for WOPs. DZ Judy is used for convenience when time constraints do not allow access to the areas in the Atlantic Ocean. The radius of DZ Judy is approximately 3,000 ft (914 m). Items deployed consist of lightsticks, sea smoke (MK6 and MK25), sea dye, inflatable rafts (Zodiacs) and pararescuers which may be deployed at times during certain training events. When pararescuers are involved in training operations, a recovery boat is deployed from the PAFB marina to clear or safe the site, approve the helicopter to begin the drop, and to recover items deployed. All deployed expendables are recovered. DZ Judy is used an average of once per month. Because the Banana River is located in a migratory bird fly-way, DZ Judy is not used at certain times during the spring and fall to avoid potential bird collisions in accordance with the 45SW Bird Hazard Reduction Plan, Operations Plan 91-212.

Nighttime WOPs in all WTAs of HH-60 helicopters include use of night-vision equipment and the use of chemical lightsticks. Lightsticks are dropped from the helicopter to mark the location of the survivor and maintain hover references operations. The sticks are 6-inch (15 cm) by 1-inch (2.5 cm) hollow plastic tubes containing two nontoxic chemicals. Bending the plastic outer tube causes a glass inner vial to rupture, mixing the chemicals together creating a luminescent reaction. Lightsticks are used instead of flares because flares can blind pilots who are using night-vision goggles, and flares could also potentially mark the location of both the survivor and rescuer in a hostile environment.

Lightsticks float and are not biodegradable, but every practicable effort is made by the recovery boat to retrieve lightsticks in the immediate vicinity at the completion of training operations in the WTA. Recovery boats are used in all WTAs except Cavallo. Its distance from shore makes it difficult to use a recovery boat. A dip net measuring approximately 3 ft by 3 ft with one inch mesh is used to scoop the lightsticks out of the water for proper disposal at PAFB.

2.2.1.2 Landing Zones

Landing zones for the HH-60 helicopters (301st RQS) are located at APAFR and in TSR (Figures 3 and 4). All are suitable for day and night operations unless otherwise stated. MacDill Range Scheduling Office is the responsible party for

all APAFR landing zones. The proposed training locations and dimensions follow.

- Landing zone Brenda at APAFR measures 100 ft by 400 ft (30 m by 122 m). The surface is pervious with maintained grass and sparse tree growth on the south side. This landing zone was created in 2002.
- Landing zone Duey at APAFR measures 150 ft by 300 ft (46 m by 91 m). The surface is pervious with maintained grass. There is a clump of trees on the NE side of the landing zone. This landing zone was created in 2002.
- Landing zone Fort Kissimmee at APAFR measures 400 ft by 500 ft (122 m by 152 m). The surface is pervious with grass 2 to 3 ft tall. There is a river on the east side of a dirt road that runs through the landing zone. This landing zone was created in 1997.
- Landing zone Huey at APAFR measures 500 ft by 900 ft (152 m by 274 m). The surface is grassy with a thick treeline on the west side. The east side is bordered by a dirt road and another treeline. This landing zone was created in 1997.
- Landing zone Louie at APAFR measures approximately 400 ft by 900 ft (122 m by 274 m). The surface is grassy with numerous small trees throughout the area. This landing zone is only used during the day due to the numerous small trees growing throughout it. This landing zone was created in 1997.
- Landing zone Mary at APAFR measures approximately 150 ft by 300 ft (46 m by 91m). The surface is grass with sparse trees. A dirt road runs along the north side. This landing zone was created in 2002.
- Landing zone Molly at APAFR measures approximately 400 ft by 750 ft (122 m by 229 m). This landing zone is grassy with a thick tree line on the north, bordered on the south by a ditch and a clump of trees. This landing zone was created in 1997.
- Landing zone Oscar at APAFR measures 400 sq ft (122 sq m). The surface is pervious dirt and sand. This landing zone is a live gunnery range. This landing zone was created in 1997.
- Landing zone Peanut at APAFR measures 600 sq ft (183 sq m). The surface is pervious and covered by grass. There is a fenceline and dirt road on the western edge. The west end opens to Echo Range (described below). This landing zone was created in 1997.

Figure 2. Water Training Areas



Figure 3. Avon Park Helicopter Landing Zones and Munitions Training Areas

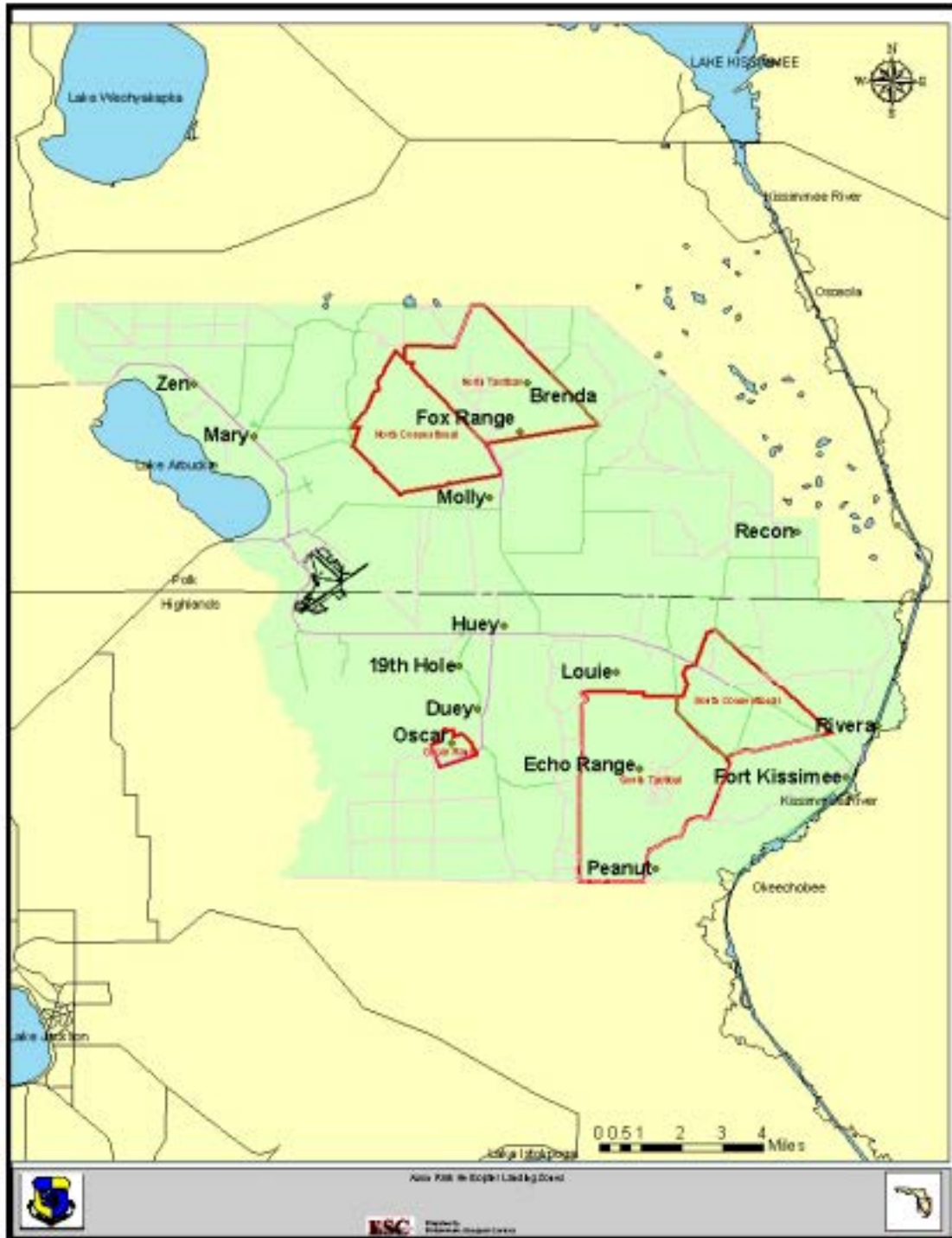


Figure 4. TSR Helicopter Landing Zones



- Landing zone Recon at APAFR measures approximately 175 ft by 400 ft (53 m by 122 m). The surface is grassy with low brush and a few sparse trees. An east/west dirt road is located at the north end of the landing zone. This landing zone was created in 1997.
- Landing zone Rivera at APAFR measures 300 ft by 1,500 ft (91 m by 457 m). The surface is pervious with grass 2 to 3 ft tall. Small bushes are scattered throughout the landing zone. This landing zone was created in 1997.
- Landing zone Zen at APAFR measures 600 sq ft (183 sq m). The surface is soft and grassy. Four to five foot tall elephant grass makes up the landing zone. This landing zone is being relocated in the near future by the APAFR Environmental Office because it has been determined to be within a wetland. This landing zone was created in 1997.
- Landing zone 19th Hole measures 175 ft by 200 ft (53 m by 61 m). The surface is pervious with 2 to 3 ft tall grasses. There is a pond on the southeast corner of the landing zone. The rest of the landing zone is interspersed with 1 to 2 ft (30 to 61 cm) tall scrub brush. This landing zone was created in 1997.
- Landing zone Echo Range at APAFR measures 5,000 ft by 6,000 ft (1.5 km to 1.8 km). It is composed of dirt and sand and is a live gunnery range. This landing zone was created in 1997.
- Landing zone Fox Range at APAFR measures 5,000 ft by 8,000 ft (1.5 km to 2.4 km). It is composed of dirt and sand and is also a live gunnery range. This landing zone was created in 1997.
- Landing zone Cowpie located in TSR has dimensions of 400 ft by 175 ft (122 m by 53 m). The surface is pervious with maintained grass. This landing zone was created in 1997.
- Landing zone Dump is located in TSR. The dimensions are approximately 300 sq ft (91 sq m). The surface is pervious and vegetated with maintained grass. This landing zone was created in 1997.
- Landing zone Golden Gate is located in TSR and measures approximately 300 ft by 500 ft (90 m by 152 m). The surface is pervious and vegetated with maintained grass. This landing zone was created in 1997.
- Site 11 is located in TSR and measures 180 ft by 250 ft (55 m by 76 m). The surface is pervious and vegetated with maintained grass. This landing zone was created in 1997.

2.2.1.3 Munitions Training Area

Avon Park Air Force Range has several munitions firing areas currently being used by numerous DoD groups. Each has been sited by Air Force officials to avoid impacts to threatened and endangered flora and fauna. Use of these areas must be scheduled in advance so areas are closed to the public and any required stipulations for use of the range are provided.

2.2.1.4 Summary of 301st RQS Training Activities

The following table summarizes training activities of the 301st RQS using HH-60 helicopters.

Table 1. Summary Table of Training Activities of the 301st RQS

Training/Event	Location	Altitude (ft)	Airspeed (knots)	Duration (hours)	Freq. Of Use (sorties per month)
Contact/Emergency Patterns	PAFB	0 – 1000	0 – 100	1	10
Instrument Flight	SE U.S Area	0 – 10,000	110	3	5
Low Level Flight	PAFB LATN area	0 – 500	0 – 130	3	64
Remote/Tactical LZ Patterns	Tosohatchee LZ's & APAFR	0 – 300	0 – 100	1	64
Gunnery	APAFR	0 – 300	0 – 100	1	16
Chaff and Flare	APAFR	Chaff 0 – 500/Flare 1000 & above	0 – 130	1	2
Water Operations	DZ Judy, Areas N and S	0 – 150	0 – 100	1	16
Aerial Refueling	MOA & 15V AR Tracks	1000 & above	115	1	8
Sling Load	PAFB Sling Load Area	0 – 300	0 – 100	1	2

2.2.2 39th Rescue Squadron

2.2.2.1 Water Drop Zones

The 39th RQS uses C-130 aircraft in the following Water Drop Zones:

- Drop zone Judy, described earlier (Figure 2) is also used by the 39th RQS. Items deployed include personnel, simulated air training bundles (SATB)

consisting of 10 pound bags of sand with a parachute, and Rigged Alternate Method Zodiac (RAMZ). Personnel drop under parachutes, follow the package and inflate the RAMZ once everyone impacts the water. Judy is used approximately once per week for day or night training. A Drop Zone party, using a recovery boat deployed from the PAFB marina, is required for this exercise to clear the DZ, clear the aircraft to perform the drop, and to recover dropped items. All dropped items are recovered.

- Drop zones Rick Smith and Bill Sutton are located in the Atlantic Ocean approximately 23 miles (37 km) east of PAFB and 16 miles (26 km) E/SE of Port Canaveral, respectively (Figure 2). The sites were adopted by the 39th RQS when they officially became a tenant of PAFB in 1993. DZ Rick Smith has a radius of approximately 6,000 ft (1829 m) and the radius of DZ Bill Sutton is approximately 3,000 ft (914 m). Training operations performed in these drop zones include navigation training for the HC-130s and personnel drops under parachutes. Mock pararescuers follow the package and inflate the RAMZ once everyone impacts the water. The recovery boat is deployed from Port Canaveral. They may occur during both day and night. Training is most beneficial when land and lights cannot be seen and used as navigational aids. Smith and Sutton are seldom used due to their close proximity to the shore. The recovery boat is deployed from Port Canaveral to “safe” the area for drops and for recovery of pararescuers and deployed items.
- Drop zone Ronnie Cavallo in the Atlantic Ocean (Figure 2) is 46 miles (74 km) east of PAFB and has a radius of approximately 12 miles (19 km). A recovery boat does not support training operations at DZ Cavallo due to distance to shore and therefore, the items expended at this location are not recovered. This area is used for long distance navigation training for the HC-130s and for airspace deconfliction when the other areas are being used and not able to support training. On an annual basis, expendables and amount used at this drop zone include LUU-4, illumination flares (15); MK-6, long smoke flares (8,579); MK-25, short smoke flares (310); and MK-59, sea dye (160). DZ Cavallo is used on average once per month during either day or night.

2.2.2.2 Land Drop Zones

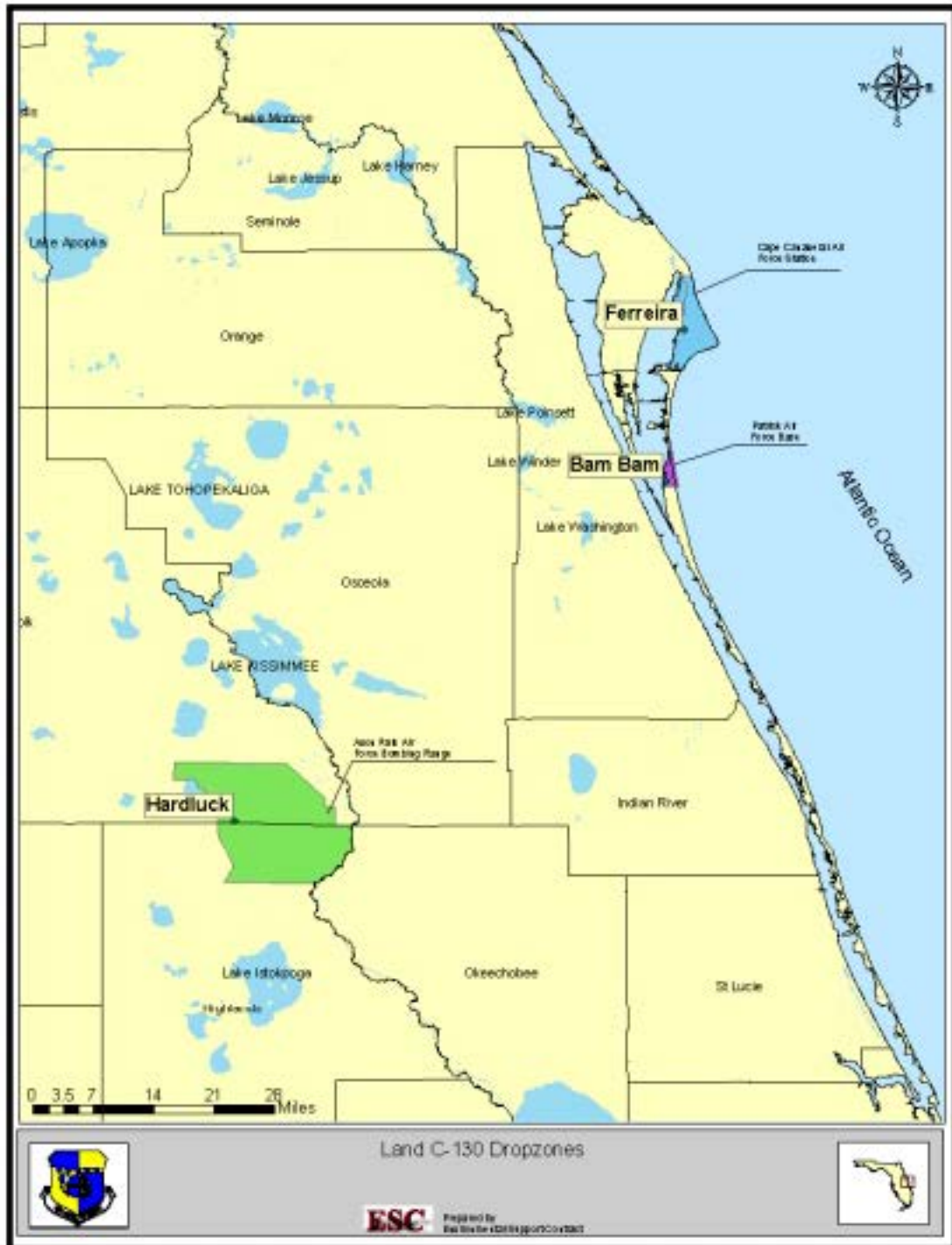
The 39th RQS routinely uses the land drop zones (DZs) at CCAFS, PAFB and APAFR (Figure 5), to conduct combat search and rescue training in support of wartime tasking and peacetime missions such as Shuttle support.

- Drop zone Ferreira is located in the ruderal, grassy area at the west end of the Skid Strip at CCAFS and is the preferred DZ location for the 39th RQS. Deployments could potentially occur there nightly, but when this area is unavailable, Bam Bam or Hardluck (described below) are used. This drop zone was created in 2001.

- Drop zone Bam Bam is located at the south end of the PAFB airfields between taxiway Bravo and the main runway. It was created in 1997.
- Drop zone Hardluck is located in the ruderal grassy area on the SE side of the airfield at APAFR. It was created in 2001.

As indicated above, these are land DZs which require a Drop Zone Coordinator to be on the ground to clear the DZ, clear the aircraft by radio to perform a drop after a visual inspection of the area, and recover items. During inspection, the Drop Zone Coordinator ensures neither personnel nor wildlife are located in the drop zone. Personnel and simulated air training bundles (SATBs) are AF approved items for drops from HC-130's. Drops may occur during the day or night.

Figure 5. Land C-130 Drop Zones



2.2.2.3 Summary of 39th RQS Training Activities

The following table summarizes the training activities of the 39th RQS using C-130 aircraft.

Table 2. Summary Table of Training Activities of the 39th RQS

Training/Event	Location	Altitude (ft)	Airspeed (knots)	Duration (hours)	Freq. Of Use (sorties per month)
Low Level Flight	PAFB LATN	300 – 2,500	200-250	3	30
Airdrops	Judy DZ	1,500-2,500	130	1	5
Airdrops	Bam Bam DZ	500-2,500	130	0.5	25
Airdrops	Cavalo DZ	150-1,000	130	1	5
Airdrops	Ferreira DZ	300-13,000	130	1	5

2.2.3 Helicopter Air Refueling Tracks

The two helicopter AR tracks used by the 920th RQG are located at 500 to 4,000 ft (152 m to 1219 m) above ground level (AGL). They are over the Atlantic Ocean (15 Victor) and within a Federal Aviation Administration (FAA) designated Military Operations Area (MOA) airspace over Okeechobee and Osceola Counties in Florida (AR track Marian) (Figure 6). The tracks are bi-directional (i.e., aircraft would enter from either end of track) and range from approximately 25 to 37 nautical miles (nm) (46 km to 69 km) long as well as 4 nm (7.4 km) wide on either side of the track centerline (i.e., the total width equals 8 nm [15 km]). The helicopter AR tracks are used for air refueling for training operations and actual refueling during training operations. Refueling takes place at 2,000 ft AGL (610 m) except when limited by weather conditions, such as low clouds, in which case the aircraft would drop altitude to between 500 and 1,500 ft (152 m and 457 m) AGL. Since all refueling operations are performed under FAA visual flight rules (VFR) and require at least 1 mile (1.6 km) of visibility, refueling does not take place when visibility is limited.

HC-130 and HH-60 refueling operations consist of an HH-60 approaching an HC-130 approximately 300 ft (91 m) below the aircraft (typically at 1,700 ft [518 m] AGL), and climbing to the same altitude (2,000 ft AGL [610 m]) as the HC-130 when cleared to refuel. The aircraft travel at a speed of approximately 110 kts (204 km/hr). Once the HH-60 and HC-130 are hooked up, fuel passes from the HC-130 to the helicopter. Dry contacts, where no fuel is passed but the aircraft are hooked up, are conducted for training purposes during approximately one of four contacts utilizing the same AR tracks described above.

- The AR track Marian allows HH-60 helicopters to train at APAFR with adequate training flight time. The use of this track eliminates the need to fly extended distances to land and refuel. Refueling is accomplished either when traveling to APAFR or during the return flight to PAFB.
- The Atlantic Ocean refueling track (AR 15 Victor) has been sited to ensure location over an area of low population density and a minimum number of potentially sensitive receptors such as hospitals and schools. It also minimizes potential conflicts with commercial and other military flight operations.

2.3 Description of Alternatives

The CEQ regulations 40 CFR Part 1500, Section 1502.4 states that “...proponents must rigorously explore and objectively evaluate all reasonable alternatives which were eliminated from detailed study, and briefly discuss the reasons for their having been eliminated.” Alternatives that were eliminated from further evaluation are described below in Section 2.3.1.

The preferred alternative would be the continued use of WTAs Judy, Rick Smith, Bill Sutton, Ronnie Cavallo, WP44, WP45, and APAFR. Land DZs and LZs used would continue to include Ferreira, Bam Bam, APAFR, and numerous sites at TSR. Helicopter AR 15 Victor over the Atlantic Ocean and AR Track Marian near APAFR would continue to be utilized for in-flight refueling. Live fire munitions training would continue to be performed at APAFR in the existing range.

2.3.1 Alternatives Eliminated from Further Consideration

The AF considered locations other than those discussed in Section 2.3 at PAFB, CCAFS, in the Atlantic Ocean, the Banana River, APAFR, and TSR for the proposed action. Those alternatives were eliminated from consideration when the selection criteria discussed below were applied. The locations described above were carefully chosen to minimize impacts to the environment, the public, and other aircraft.

- PAFB – Locations other than DZ Bam Bam were evaluated and found to not meet the required criteria discussed in the following section. PAFB consists of administrative areas and technical areas in addition to the runways. These areas would not be suitable for drop zones or landing zones.

Figure 6. Air Refueling Routes



- CCAFS – Locations other than DZ Ferreira at the Skid Strip were evaluated and eliminated from further consideration due to safety concerns similar to those discussed above for PAFB. Landscape at CCAFS consists of scrub vegetation, maritime hammock, or improved grounds with a variety of rocket launch complexes and associated hazardous zones. DZ Ferreira provides a wide-open grassy area that is currently used for aircraft operations. Utilizing an area other than DZ Ferreira for 920th RQG training operations may adversely impact the CCAFS mission.
- The Atlantic Ocean – Locations other than DZs Rick Smith, Bill Sutton, Ronnie Cavallo, WP44, and WP45 were eliminated from further consideration after applying the selection criteria discussed in section 2.2. Criteria numbers 1, 4, and 5 could potentially not be met by training in other areas in the Atlantic Ocean.
- The Banana River – A location other than DZ Judy was evaluated and eliminated from further consideration after applying the selection criteria discussed in section 1.2. Criteria numbers 1, 2, 4, and 5 could potentially not be met by training in other areas in the Banana River. Water depth requirements also contributed to this inability to use other Banana River sites.
- Air refueling tracks other than AR Track Marian and AR Track 15 Victor – Alternative locations were eliminated from further consideration after applying selection criteria numbers 1, 2, and 3 for helicopter air refueling tracks.

A number of selection criteria were applied to identify reasonable WTAs, helicopter AR tracks, and to assess alternatives that meet the purpose and need of the proposed action. Sites must:

1. be located in close proximity to PAFB to allow for efficient transit time and to maximize overwater training time;
2. have a size allowing simultaneous operation of two helicopters at two different locations, with proper distance between for safety purposes;
3. have a shape allowing aircraft operations to be flown in any direction due to requirements to fly water patterns in the wind;
4. be sufficiently dark to train for low light or no light operations; and
5. be located a sufficient distance (1 nautical mile minimum) from shore to prevent pilots from using the shoreline as a navigational aid.

For helicopter AR tracks, the following criteria were applied. The tracks must be:

1. located over areas with low population density and a minimum number of potentially sensitive receptors;
2. located to minimize conflicts with civil, commercial, or other military flight operations; and

3. oriented to maximize training efficiency and minimize transit time from PAFB to the proposed water operation areas, TSR, and APAFR.

2.3.2 No Action Alternative

Under the no action alternative, the 920th RQG would stop utilizing the WTAs, LZs, DZs, and helicopter AR tracks that have been established. Aircrews would not be able to meet minimum training requirements, and pilot proficiency training would become inadequate. Crew proficiency in combat employment of the HH-60 is already low due to lack of experience in all crew positions. This is at a time when these crews are deployed to an increasing number of worldwide locations to support combat operations. The continued lack of realistic training, especially scenarios such as those encountered recently in the Middle East, may soon put mission success and crew survivability in jeopardy.

There would be no impacts to any of the environmental components discussed in Section 4.0 as a result of this alternative. Therefore, there is no discussion of the environmental consequences associated with the no action alternative.

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3.0 Affected Environment

This chapter, organized by resource topics, describes the existing conditions of resources potentially affected by the proposed action and the no action alternative described in Section 2.0. The analysis of this affected environment provides the framework for understanding the direct, indirect, and cumulative effects of the proposed action. The biological resource section is arranged so that terrestrial flora are discussed first followed by fauna, and then aquatic resources.

The expected geographic scope of potential impacts is known as the Region of Influence (ROI). The ROI for the training operations of the 920th RQG would include areas at PAFB, CCAFS, APAFR, and TSR. Areas in the Atlantic Ocean and Banana River would also be included in the ROI. The sizes of the ROI may vary for the different training areas and operations. Each ROI will be discussed in the applicable resource topic within section 3.0.

3.1 Airspace

A significant discussion of airspace may be found in the previously referenced EA, USAF 1999. Dissimilarities for the training operations of the 920th RQG are discussed below.

Airspace within 5 miles of PAFB at an altitude of 2,500 feet and lower is controlled by AF personnel at the PAFB tower. Airspace within 5 miles and at an altitude greater than 2,500 feet or at any altitude outside of 5 miles from PAFB is controlled by Daytona Approach in Volusia County, Florida.

Airspace associated with low-speed and low altitude training conducted by military aircrews is commonly identified as a Low Altitude Training Navigation (LATN) area. A LATN covers large areas of uncontrolled airspace and facilitates operational flexibility (flight patterns are not confined to narrow flight corridors and direction of flight is not restricted). Altitudes within the 920th RQG LATN area are limited to between 100 feet and 1,500 feet AGL, with airspeed restrictions not to exceed 250 knots indicated airspeed (KIAS). The purpose of LATN areas is to conduct unscheduled visual flight rule low-altitude navigational training.

The LATN for the 920th RQG encompasses more than 2,200 nautical miles. This LATN area generally covers portions of south central and east central Florida. AR Track Marian lies within this area of uncontrolled airspace in the LATN.

3.2 Noise

Noise is usually defined or commonly referred to as unwanted sound. It may be undesirable because it interferes with speech communication and hearing, and is intense enough to damage hearing, or is simply annoying. High-amplitude noise can be unwanted because of potential structural damage. Noise is usually

thought of as coming from man-made activities, but some natural sounds (e.g., from insects, animals, wind, waves) are considered to be noise.

The characteristics of sound include parameters such as amplitude, frequency, and duration. Sound can vary over an extremely large range of amplitudes. The decibel (dB), a logarithmic unit that accounts for the large variations in amplitude, is the accepted standard unit for the measurement of sound.

Different sounds may have different frequency content. When measuring sound to determine its effects on a human population, it is common to adjust the frequency content to correspond to the frequency sensitivity of the human ear. This adjustment is called A-weighting. Sound levels that have been so adjusted are referred to as A-weighted sound pressure level. The unit is still dB, but the unit is sometimes written dBA for emphasis.

A detailed discussion of noise is found in the reference EA (USAF 1999, pg. 3-12 through 3.15). Noise levels for the proposed action are expected to be virtually identical to those in the previous EA. The levels range from 45 decibels (dBA) within the water training areas for day-night average sound level (DNL) to 98 dB for the sound exposure level (SEL). AR tracks were determined to have a DNL less than 40 dB and an SEL of 92 for all three aircraft (two HH-60 helicopters and one C-130 fixed-wing aircraft) in the refueling track at the same time. The DNL for the HH-60 landing zone was also calculated to be less than 40 dB.

Most of the region surrounding CCAFS is open water, with the Atlantic Ocean to the east and the Banana River to the west. The relative isolation of the station reduces the potential for noise to affect adjacent communities. The closest residential areas to CCAFS are to the south, in the cities of Cape Canaveral and Cocoa Beach. Aircraft flyovers from PAFB and rocket launches from CCAFS would be expected to increase noise levels for short periods of time, as well as commercial aircraft flyovers.

Ambient noise levels at CCAFS have not been monitored. The ambient noise levels at KSC, where similar industrial activities occur, range from about 60 to 80 dBA, similar to levels found in many industrial settings. These levels would also apply to PAFB. Flight paths of military and commercial aircraft as well as industrial and residential automobile traffic can be expected to affect noise levels. Noise levels along the beaches near Cape Canaveral probably range from 45 to 55 dBA (NASA 2002).

Ambient noise levels for TSR are not available. Since the area is relatively undeveloped, levels are expected to be low. Vehicular traffic from SR 528 may affect noise levels in certain areas of the reserve as well as infrequent commercial and military aircraft flyovers.

APAFR is an active bombing range, so noise levels can be expected to fluctuate considerably during exercises.

The ROI for noise in DZ Judy (within 2 miles of the DZs center point along the shoreline) contains 91 single-family residences on Merritt Island to the west and PAFB and south Cocoa Beach on the east shore. These homeowners could potentially hear aircraft noise during WOPs in DZ Judy.

3.3 Water Quality

3.3.1 The Banana River

The State of Florida designates the Banana River as Class III waters (recreation, fish and wildlife management). An integral part of the Indian River Lagoon (IRL) Estuary, it is one of the three basins (Mosquito Lagoon, Banana River Lagoon and North and South Indian River Lagoon) that comprise the system. The entire Banana River is also designated as an Aquatic Preserve (FAC 62-302.700) and categorized as Florida Outstanding Waters. Because Aquatic Preserves are considered exceptional in terms of aesthetic, scientific, and biological value, they have substantial restrictions regarding various activities, including effluent discharges and drilling.

The following water quality information is referenced in a water quality monitoring assessment by Sigua et al., 2000 unless cited otherwise.

The IRL receives inputs of saltwater from the ocean through inlets and fresh water from direct precipitation, groundwater seepage, surface runoff, as well as discharges from creeks and streams (nonpoint sources) and point sources such as wastewater treatment plants.

In a system as large and complex as the IRL, water quality measurements using parameters such as total phosphorus, total nitrogen, chlorophyll *a* concentrations, dissolved oxygen, total suspended solids, and color are potentially subject to large spatial and temporal variability. Data demonstrate a north-to-south gradient of increasing total phosphorus concentrations and loading. Lower measurements are obtained in the Mosquito Lagoon (ML) and Banana River Lagoon (BRL), whereas measurements are two to three times higher in the southern extent of the estuary. Chlorophyll *A* levels are also highest in the southern segment, but also within the BRL. Higher chlorophyll *a* and total phosphorus concentrations are typically observed during the warm and wetter months (May-October). Total nitrogen levels are more variable throughout the system.

The high levels of phosphorus loading in the southern IRL, relative to other segments, may be associated with the larger watershed to the south and the more extensive system of canals that efficiently deliver huge volumes of drainage water from urban and agricultural land uses. There also is an increasing rate of urban land-use intensification in the southern IRL and central IRL compared with the ML and BRL.

For the most part, water quality in the Banana River near DZ Judy is in fair condition despite years of land-based runoff (J. Royal, pers. comm.). Waters of the Banana River tend to be basic with a pH of about 8, and euryhaline with salinity ranging from 10 to 28 parts per thousand. Water temperatures average 25°C with ranges of 8 to 36°C. Average physical and chemical parameters below are those required for Class III waters (predominantly marine) as defined by the State of Florida (Table 3).

Table 3. Mean water quality parameters for SJRWMD station BR-6 near DZ Judy from 1996-2002.

PARAMETER	MEAN	CLASS III PARAMETERS
Dissolved Oxygen (DO) mg/L	7.39	NO LESS THAN 4.0
pH	8.14	6 – 8.5
Salinity (ppt)	19.41	N/A
Total Suspended Solids (TSS) mg/L	17.84	N/A
Total Nitrogen (TN)* mg/L	1.61	N/A
Total Phosphorus (TP) mg/L	0.06	≤ 0.1
TN/TP Ratio	27.39	N/A
chlorophyll-a (µg/L)	9.49	N/A

* Measured as Total Kjeldahl Nitrogen. N/A not defined.

Closure of shellfish harvesting in this sector of the Banana River has been due to high bacteriological levels following rain events, subsequently causing the reclassification of shellfish harvesting waters as "restricted" or "prohibited".

Boating and marine services are a booming industry in the area. The number of registered recreational boaters along the IRL from 1978 to 1993 increased by more than 100%. Marine support services for these boats include full-service marinas, boat storage facilities, boat sales and rentals, repair facilities, bait and tackle stores, boating supply stores, marine construction and maintenance services, yacht clubs and resorts (IRLNEP 1996). There are three marinas within 8 miles (13 km) of DZ Judy.

3.3.2 The Atlantic Ocean

Local circulation for the Atlantic Ocean is composed of a constant south to north current approximately 18 miles (30 km) offshore, and a fluctuating current near shore. The offshore current (Gulf Stream) is mainly driven by the North Atlantic gyre. The near-shore current is mainly wind driven and can fluctuate in speed and direction on a daily or hourly basis. Water quality data for the area is limited, but considered to be typical of that of the rest of the Atlantic Basin.

Seawater, as compared to all other natural waters, is very constant in composition. Variations in total dissolved solids are small, and salinity ranges no more than $\pm 7\%$ from its mean value of 35 parts per thousand (Berner 1996).

Biological processes acting within the oceans tend to deplete certain nutrient elements in surface waters by biological uptake and to return these elements to solution at depth due to death, settling out, decomposition, and dissolution. Some of the chief elements involved are nitrogen, phosphorus, and silicon. Due to the speed of these biological processes compared to the rate of vertical mixing of seawater, strong vertical concentration gradients of the nutrient elements result (Berner 1996). Pressure and temperature exercise effect on the composition of seawater. Because the oceans are deep compared to other water bodies, they are subjected to much higher pressures. High pressure brings about the dissolution of biogenic calcium carbonate falling to the bottom. Temperature generally decreases with depth, and this too exerts an influence on seawater composition by restricting vertical mixing due to thermally induced density layering (Berner 1996).

Water quality in the vicinity of the WTAs in the Atlantic Ocean is considered good and relatively constant. Potential variations are dissipated by mixing caused by the general circulation of seawater. Localized fluctuations can be expected when associated with natural or manmade catastrophic events (i.e., oil seeps and spills).

3.4 Biological Resources

3.4.1 Terrestrial Flora

3.4.1.1 PAFB

Herbaceous vegetation, the dominant type at PAFB, represents 43% of the land area. Mowed grass, sparse, and dense herbaceous vegetation surrounds developed areas (i.e., golf course and facilities), roadways, and the Airfield. The beach and associated dune vegetation comprise 3.2% of PAFB land area and represents the remaining natural community type. Disturbed shrub and exotic species are the second and third most abundant type of vegetation.

The area within the technical clear zone of the runways used for 920th RQG operations is comprised of regularly maintained grass. Native and exotic plants (predominantly palms) with heights from five to 50 ft (1.5-15.2 m) are found within the northern range of the runway clear zone. The southern range is comprised of a mix of palms, Brazilian pepper (*Schinus terebinthifolius*), and Australian pine (*Casuarina equisetifolia*), while oceanside vegetation is dominated by sea grape (*Coccoloba uvifera*), sea oats (*Uniola paniculata*), beach sunflower (*Helianthus debilis*), and cabbage palms (*Sabal palmetto*). The vegetation found along the Banana River and paralleling canal areas is nearly exclusively exotics, Australian pine and Brazilian pepper. A few isolated mangrove communities exist along the

Banana River, but provide little ecological value because of their small areas and sparse distribution.

No federally listed rare or endangered plant species occur at PAFB, therefore, there is no potential for training operations at LZ Bam Bam to impact protected flora species. The following plants listed by the State of Florida or the Florida Natural Areas Inventory (FNAI) have been observed on base: spider lily (*Hymenocallis latifolia*), beach star, inkberry (*Scaevola plumieri*), and prickly pear cactus. State law also affords some protection to the black mangrove, red mangrove, and white mangrove occurring along the Banana River shoreline and the edges of some canals and sea grapes and sea oats along the coastal dune.

3.4.1.2 CCAFS

Although extensively fragmented by various construction projects to support the mission of the 45SW, the installation continues to support a number of high-quality natural communities, including beach dune, coastal strand and grassland, coastal interdunal swale, basin marsh, maritime hammock, oak scrub, rosemary scrub, xeric hammock, shell mound, hydric hammock, estuarine tidal marsh, and swamp. The topographic position of natural communities on CCAFS reflects the various erosional and depositional processes of coastal land formation. Generally, older communities are found on the westward margin of the Canaveral Peninsula, along the Banana River; new and successional communities are forming along the eastern coast. These communities provide habitat for a number of listed and tropical plant species. A survey conducted by FNAI (Shultz 2000) found 12 listed species and 34 targeted tropical species of plants on CCAFS.

Vegetation surrounding DZ Ferreira at the Skid Strip consists of coastal/oak scrub vegetation. Oaks, redbays, and other species have joined and developed into a closed canopy, maximized height forest generally categorized as xeric hammock. DZ Ferreira is a previous region of regularly maintained grass at the NW terminus of the runway. The ROI for DZ Ferreira has been determined to encompass this area of mowed grass. No listed plants have been identified in this area.

3.4.1.3 APAFR

There are numerous listed plants on APAFR and a list is provided in table form in Appendix 3. Habitat types on the range include oak and sand pine scrub, dry prairie, pine flatwoods, and freshwater marshes. Training areas used by the 920th RQG have been carefully chosen to avoid any adverse impacts to any protected flora on the installation.

3.4.1.4 TSR

Flora at TSR include what is considered to be one of the largest stands of uncut cypress forest still left in Florida. Over 900 acres (364 ha) of virgin cypress trees can be found growing in the reserve. Tosohatchee State Reserve also has some of the oldest slash pines, dating nearly 250 years. A variety of rare and endangered orchids and hand ferns also grow within the boundary of the reserve. However, no plants of special concern occur within the ROI for the landing zones of the 920th RQG as the sites were specifically chosen by TSR staff to avoid those habitats.

3.4.2 Terrestrial Fauna

3.4.2.1 PAFB

Various species of wildlife inhabit, utilize, or frequent PAFB. PAFB is located on a barrier island; these types of ecosystems are important natural areas that support many plants, animals, and natural communities. Barrier islands along the Atlantic coast are especially important for nesting sea turtles, populations of small mammals, and as foraging and loafing habitat for a variety of resident and migratory shorebirds, wading birds, and song birds.

PAFB is located along one of the major migratory pathways for neotropical migratory birds that breed in eastern North America. Therefore, habitat on PAFB that is suitable for migratory birds is of conservation concern. Surveys conducted at PAFB in 1996 showed many neotropical migratory birds using the dune habitat.

The beach at PAFB is used by protected marine turtles for nesting from April to October. Threatened and endangered loggerhead and green turtles are the most common species found nesting along the PAFB eastern shore. The endangered leatherback sea turtle has also been known to nest at PAFB intermittently.

A PAFB threatened and endangered species survey (Oddy et al. 1999) yielded an updated species list as found in Table 4. The species lists are subject to change pending future species listings and delistings. There are no formally designated critical habitat areas located on PAFB, as defined under Section 4 of the Endangered Species Act (ESA). Due to their mobility, any of these species could also be present in the ROI during training operations at PAFB. Any of the birds listed below could potentially be found in the path of the aircraft or roosting and feeding in the drop zone or ROI.

The aquatic fauna associated with the species' list are described in the aquatic fauna section of this EA (3.4.4).

Table 4. Protected Species, PAFB

Common Name	Scientific Name	Federal Status	State Status
American Alligator	<i>Alligator mississippiensis</i>	SSC	T (S/A)
Burrowing Owl	<i>Athene cunicularia</i>	SSC	
Atlantic Loggerhead Turtle	<i>Caretta caretta</i>	T	T
Atlantic Green Turtle	<i>Chelonia mydas</i>	E	E
Leatherback Turtle	<i>Dermochelys coriacea</i>	E	E
Atlantic Ridley Sea Turtle*	<i>Lepidochelys kemp</i>	E	E
Hawksbill Turtle *	<i>Eretmochelys imbricata</i>	E	E
Gopher Tortoise	<i>Gopherus polyphemus</i>		SSC
Eastern Indigo Snake	<i>Drymarchon corais couperi</i>	T	T
Roseate Spoonbill	<i>Ajaia ajaja</i>		SSC
Piping Plover*	<i>Charadrius melodus</i>	T	T
Little Blue Heron	<i>Egretta caerulea</i>		SSC
Reddish Egret*	<i>Egretta rufescens</i>		SSC
Snowy Egret	<i>Egretta thula</i>		SSC
Tricolored Heron	<i>Egretta tricolor</i>		SSC
White Ibis	<i>Eudocimus albus</i>		SSC
Southeastern American Kestrel	<i>Falco sparverius paulus</i>		T
Arctic Peregrine Falcon	<i>Falco peregrinus tundris</i>		E
American Oystercatcher	<i>Haematopus palliatus</i>		SSC
Bald Eagle	<i>Haliaeetus leucocephalus</i>	T	T
Wood Stork	<i>Mycteria americana</i>	E	E
Brown Pelican	<i>Pelecanus occidentalis</i>		SSC
Black Skimmer	<i>Rynchops niger</i>		SSC
Least Tern	<i>Sterna antillarum</i>		T
Right Whale *	<i>Balaena glacialis</i>	E	E
Sei Whale *	<i>Balaenoptera borealis</i>	E	E
Finback Whale *	<i>Balaenoptera physalus</i>	E	E
Humpback Whale *	<i>Megaptera novaeangliae</i>	E	E
Florida Manatee	<i>Trichechus manatus</i>	E	E

SSC – Species of Special Concern, T – Threatened, E – Endangered, S/A – Similar in Appearance, * Not observed on PAFB, but known to occur in the vicinity

3.4.2.2 CCAFS

Various species of wildlife inhabit, utilize and/or frequent CCAFS. Cape Canaveral Air Force Station is located on a barrier island, a type of ecosystem that supports many species of plants and animals. This barrier island, like others along the southeast. Atlantic coast are especially important to nesting sea turtles,

populations of small mammals, and as foraging and roosting habitat for a variety of resident and migratory birds.

Florida Natural Areas Inventory completed a comprehensive biotic survey of CCAFS in December 1997 that included rare, threatened and endangered flora and fauna, migratory birds, and outstanding natural communities. There is no formally designated critical habitat under Section 4 of the ESA located on the installation. Table 5 provides a current list of threatened and endangered species on CCAFS. This list is subject to change pending future species listings and delistings.

Terrestrial species including the American alligator, gopher tortoise, Eastern indigo snake, and Florida pine snake could potentially occur in DZ Ferreira and its ROI during training operations. Any of the birds listed below could occasionally be found in the path of the aircraft or loafing in the drop zone or ROI.

The aquatic fauna associated with the species list are described in the aquatic section of this EA (3.4.4).

Table 5. Threatened and Endangered Fauna Found On and In the Vicinity of CCAFS.

Common Name	Scientific Name	Status	
		Federal	State
American Alligator	<i>Alligator mississippiensis</i>	T (S/A)	SCC
Atlantic Loggerhead Turtle	<i>Caretta caretta</i>	T	T
Atlantic Green Turtle	<i>Chelonia mydas</i>	E	E
Leatherback Turtle	<i>Dermochelys coriacea</i>	E	E
Atlantic Ridley Sea Turtle	<i>Lepidochelys kempi</i>	E	E
Hawksbill Turtle *	<i>Eretmochelys imbricata</i>	E	E
Gopher Tortoise	<i>Gopherus polyphemus</i>		SSC
Eastern Indigo Snake	<i>Drymarchon corais couperi</i>	T	T
Florida Pine Snake	<i>Pituophis melanoleucus mugitus</i>		SSC
Roseate Spoonbill	<i>Ajaia ajaja</i>		SSC
Florida Scrub-Jay	<i>Aphelocoma coerulescens</i>	T	T
Piping Plover	<i>Charadrius melodus</i>	T	T
Little Blue Heron	<i>Egretta caerulea</i>		SSC
Reddish Egret	<i>Egretta rufescens</i>		SSC
Snowy Egret	<i>Egretta thula</i>		SSC
Tricolored Heron	<i>Egretta tricolor</i>		SSC
White Ibis	<i>Eudocimus albus</i>		SSC
Arctic Peregrine Falcon	<i>Falco peregrinus tundrius</i>		E
Southeastern American Kestrel	<i>Falco sparverius paulus</i>		T
American Oystercatcher	<i>Haematopus palliatus</i>		SSC
Bald Eagle	<i>Haliaeetus leucocephalus</i>	T	T

Table 5 (continued).

Common Name	Scientific Name	Status	
		Federal	State
Wood Stork	<i>Mycteria americana</i>	E	E
Brown Pelican	<i>Pelecanus occidentalis</i>		SSC
Black Skimmer	<i>Rynchops niger</i>		SSC
Least Tern	<i>Sterna antillarum</i>		T
Sei Whale *	<i>Balaenoptera borealis</i>	E	E
Finback Whale *	<i>Balaenoptera physalus</i>	E	E
Humpback Whale *	<i>Megaptera novaeangliae</i>	E	E
Right Whale *	<i>Balaena glacialis</i>	E	E
Florida Mouse	<i>Peromyscus floridanus</i>		SSC
Southeastern Beach Mouse	<i>Peromyscus polionotus niveiventris</i>	T	T
Gray Bat *	<i>Myotis grisescens</i>	E	E
Florida Manatee	<i>Trichechus manatus</i>	E	E

SSC– Species of Special Concern, T- Threatened ,E–Endangered, S/A-Similar in Appearance

* - Not observed on CCAFS, but known to occur in the vicinity.

3.4.2.3 APAFR

APAFR contains a variety of rare central Florida ecosystems, including dry prairie, oak and sand pine scrubs, pine flatwoods, and freshwater marshes that abut the Kissimmee River. The range contains 60,000 acres (24,281 hectares) of wetlands.

These diverse habitats support a wide variety of protected wildlife, including red-cockaded woodpeckers, grasshopper sparrows, Florida scrub-jays, Florida panther, Florida black bear, gopher tortoise, and gopher frog. A complete list of protected faunal species found at APAFR can be found in Table 6.

Military training areas have been carefully sited to avoid impacts to these protected species and habitats. The APAFR Natural Resource Office maintains GIS coverages for nesting sites of several species including red-cockaded woodpecker, Florida scrub-jay, and grasshopper sparrow. This information is used for planning purposes so military groups performing training exercises can be informed of the areas that they need to avoid (Appendix 4, AF Form 813's for proposed training at APAFR).

Table 6. Protected Bird, Mammal, and Reptile Species Known to Occur at APAFR.

Common Name	Scientific Name	Federal Status	State Status
Bachman's sparrow	<i>Aimophila aerstivalis</i>	C2	
Bald eagle	<i>Haliaeetus leucocephalus</i>	LE	LT
Crested caracara	<i>Polyborus plancus</i>	LT	LT
Florida grasshopper sparrow	<i>Ammodramus savannarum floridanus</i>	LE	LE
Florida scrub-jay	<i>Aphelocoma coerulescens</i>	LT	LT
Limpkin	<i>Aramus guarauna</i>		LS
Little blue heron	<i>Egretta caerulea</i>		LS
Roseate spoonbill	<i>Ajaia ajaja</i>	C2	LS
Snail kite	<i>Rostrhamus sociabilis</i>	LE	LE
Snowy egret	<i>Egretta thula</i>		LS
Southeastern American kestrel	<i>Falco sparverius paulus</i>	C2	LT
Tricolored heron	<i>Egretta tricolor</i>		LS
Wood stork	<i>Mycteria americana</i>	LE	LE
Florida black bear	<i>Ursus americanus floridanus</i>	C2	LT
Florida fox squirrel	<i>Sciurus niger shermani</i>	C2	LS
Florida long-tailed weasel	<i>Mustela frenata peninsulae</i>	3C	
Florida panther	<i>Felis concolor coryi</i>	LE	LE
Round-tailed muskrat	<i>Neofiber alleni</i>	C2	
Sherman's fox squirrel	<i>Sciurus niger shermani</i>	C2	LS
American alligator	<i>Alligator mississippiensis</i>	LTSA	LS
Eastern indigo snake	<i>Drymarchon corais couperi</i>	LT	LT
Florida scrub lizard	<i>Sceloporus woodi</i>	C2	
Gopher frog	<i>Rana aerolata</i>	C2	LS
Gopher tortoise	<i>Gopherus polyphemus</i>	C2	LS

Federal and State Rank Explanations

FEDERAL: LE and LT – Listed as endangered and threatened species, respectively, under the provisions of the ESA. C2 – United States Fish and Wildlife Service (FWS) has information that proposing to list this species as endangered or threatened is possibly appropriate. 3C – Taxa that have proven to be more abundant than previously believed. LTSA – Threatened due to similarity of appearance.

STATE: LE and LT - Listed as Endangered Species and Threatened Species, respectively, by the Florida Fish and Wildlife Conservation Commission. LS – Listed as Species of Special Concern by Florida Fish and Wildlife Conservation Commission

3.4.2.4 TSR

The TSR marshes are feeding areas for wading birds. During winter months the reserve hosts large numbers of migrating waterfowl. The forested uplands support white-tailed deer, bobcat, fox squirrel, bald eagle, gray fox, turkey, hawks, owls, and many species of songbirds. Protected species such as gopher tortoise and indigo snake can also be found in the upland areas.

The landing zones used by the 301st RQS have been sited in areas not commonly known to contain threatened and endangered fauna. The possibility exists for any of the above listed commonly found animals or a protected species to be transient in the landing zone area during a training operations.

TSR maintains a list of significant fauna found on the property and they are summarized in Table 7.

Table 7. Significant Bird, Amphibian, Reptile, and Mammal Species Known to Occur on Tosohatchee State Reserve.

Common Name	Scientific Name	FFWCC	USFWS	FNAI
American redstart	<i>Setophaga ruticilla</i>			S3
American swallow-tailed kite	<i>Elanoides forficatus</i>			S2S3
Bachman's sparrow	<i>Aimophila aestivalis</i>			S3
Bald eagle	<i>Haliaeetus leucocephalus</i>	T	T	S3
Black-crowned night heron	<i>Nycticorax nycticorax</i>			S3?
Black skimmer	<i>Rostrhamus sociabilis</i>	E	E	S1
Caspian tern	<i>Sterna caspia</i>			S2?
Cooper's hawk	<i>Accipiter cooperii</i>			S3?
Crested caracara	<i>Caracara plancus audubonii</i>			S2
Florida sandhill crane	<i>Grus canadensis pratensis</i>	T		S2S3
Glossy ibis	<i>Plegadis falcinellus</i>			S2
Golden eagle	<i>Aquila chrysaetos</i>			
Hairy woodpecker	<i>Picoides villosus</i>			S3?
Least bittern	<i>Ixobrychus exilis</i>			S4
Limpkin	<i>Aramus guarauna</i>	SSC		S3
Little blue heron	<i>Egretta caerulea</i>	SSC		S4
Louisiana waterthrush	<i>Seiurus motacilla</i>			S3
Merlin	<i>Falco columbarius</i>			SU
Northern harrier	<i>Circus cyaneus</i>			
Osprey	<i>Pandion haliaetus</i>			S3S4
Red-cockaded woodpecker	<i>Picoides borealis</i>	T	E	S2
Roseate spoonbill	<i>Ajaia ajaja</i>	SSC		S2S3
Short-tailed hawk	<i>Buteo brachyurus</i>			S3
Snail kite	<i>Rostrhamus sociabilis</i>	E	E	S2
Snowy egret	<i>Egretta thula</i>	SSC		S4
Tricolored heron	<i>Egretta tricolor</i>	SSC		S4
White ibis	<i>Eudocimus albus</i>	SSC		S4
Wood stork	<i>Mycteria americana</i>	E	E	S2

Table 7 (continued)

Common Name	Scientific Name	FFWCC	USFWS	FNAI
Worm-eating warbler	<i>Helmitheros vermivorus</i>			S1
Yellow-crowned night-heron	<i>Nyctanassa violacea</i>			S3?
Florida gopher frog	<i>Rana capito aesopus</i>	SSC		S3
American alligator	<i>Alligator mississippiensis</i>	SSC	T(S/A)	S4
Eastern indigo snake	<i>Drymarchon corais couperi</i>	T	T	S3
Gopher tortoise	<i>Gopherus polyphemus</i>	SSC		S3
Bobcat	<i>Felis rufus</i>			
Florida black bear	<i>Ursus americanus floridanus</i>	T		S2
Florida panther	<i>Felis concolor coryi</i>	E	E	S1
River otter	<i>Lutra canadensis</i>			
Round-tailed muskrat	<i>Neofiber alleni</i>			S3
Sherman's fox squirrel	<i>Sciurus niger sharmani</i>	SSC		S2
Southeastern shrew	<i>Sorex longirostris</i>			S4

Federal and State Rank Explanations

FEDERAL: E and T – Listed as Endangered and Threatened Species, respectively, by the FWS. T(S/A) – Threatened due to similarity of appearance.

STATE: E & T - Listed as Endangered and Threatened Species, respectively, by the FFWCC. SSC – Listed as Species of Special Concern by FFWCC.

FNAI STATE RANK: S1 – Critically imperiled in Florida because of extreme rarity (5 or fewer occurrences or less than 1000 individuals). S2 – Imperiled in Florida because of rarity (6 to 20 occurrences or less than 3000 individuals). S3 – Either very rare and local throughout its range (21 – 100 occurrences or less than 10,000 individuals) or found locally in a restricted range. S4 – apparently secure in Florida. SU – due to lack of information, no rank or range can be assigned. S? – not yet ranked (temporarily).

3.4.3 Aquatic Flora**3.4.3.1 The Banana River**

The Banana River is a component of the IRL which extends 156 miles (251 km) along the Florida east coast encompassing three major water bodies, the Mosquito Lagoon, the Indian River and the Banana River. DZ Judy is located in the southern basin of the Banana River, south of the State Road 520 Causeway and north of Pineda Causeway, Figure 2. It is positioned approximately midway between the two barrier islands of Cocoa Beach and Merritt Island.

The Banana River water depths underlying DZ Judy average about 6 feet (2.1 m). Submerged aquatic vegetation (SAV), particularly seagrasses within the zone is ephemeral to non-existent. This is consistent with current growth patterns of SAV in the IRL in relation to water depths; deeper waters of the IRL generally do not support seagrass. The SAV maps for the area (FWCC 2000) indicate the margin of an isolated SAV bed may run along the NE boundary of DZ Judy, but this is likely to be drift algae. The vegetation in nearby beds may

change from year to year but generally is dominated by shoal grass (*Halodule wrightii*) and mixes of manatee grass (*Syringodium filiforme*), *Halophila engelmanni* (no common name), the alga *Caulerpa prolifera* and *Gracilaria* species (Morris, L. , pers comm).

3.4.3.2 The Atlantic Ocean

The Atlantic Ocean bottom in the vicinity of PAFB and CCAFS is characterized by sandy shoals out to about the 60 ft (18 m) depths (10 miles offshore) sparsely populated with worm rock reef, seagrass and small corals. The WTAs WP44 and WP45 are located in this eastern-most area of this zone, about 5 miles (8 km) offshore. The bottom continues to deepen out to about 60 miles (97 km) from the coast, and then slopes to depths of 2,500 to 3,000 ft (762 m to 914 m) at the Blake Plateau.

3.4.4 Aquatic Fauna

3.4.4.1 Banana River

The northern IRL is inhabited by at least 141 species of fish, numerous invertebrates, birds, aquatic reptiles, and several mammals including manatees, dolphins and otters. With the abundance of fish, sport fishing is common and commercial fishing occurs but is somewhat limited in the Banana River. Fisheries data show that from 1970 through 1985, total commercial fisheries landings increased in Brevard County due to significant oyster and mullet landings. Additional information regarding fish is found in Section 3.4.4.2.1.

All species of sea turtles are protected under the ESA. Although two primary species, loggerheads and greens, can be found in the IRL, they have been conspicuously absent from the Banana River (Table 4). This trend appears to be changing in the northern Banana River, near CCAFS (Provancha, pers. obs). Aerial surveys and local observations over DZ Judy indicate no sightings of sea turtles, and the marine turtle stranding database shows no strandings in this portion of the Banana River (FWCC 2000).

The American alligator (*Alligator mississippiensis*) is federally-listed as a threatened species due to similarity of appearance to the American crocodile (*Crocodylus acutus*), which is not found near CCAFS or PAFB. The alligator has made a strong recovery in Florida and although alligators inhabit and reproduce in the Banana River, the area of DZ Judy is not conducive habitat due to its proximity to shore and to developed areas. Therefore, alligators are rarely observed in this section of the Banana River (DZ Judy).

Two small spoil islands, located about 2.5 miles (4 km) NW of DZ Judy, often support a variety of birds (pelicans, cormorants, etc.) for loafing and roosting.

Manatees (*Trichechus manatus*) are commonly seen in the Banana River and are a protected endangered species under the ESA. Aerial survey data from

1997-1999 over the Banana River indicated no sightings of manatees within DZ Judy (FWCC 2000). Telemetry data for manatees gathered by United States Geologic Service (USGS) shows no persistent use of DZ Judy (D. Easton pers comm). Although manatees certainly use DZ Judy as part of a travel corridor, they do not appear to spend much time in the area based on these surveys. The sightings showed consistent tendencies of the animals to use near-shore waters (i.e., against the PAFB shoreline) where SAV may grow or where channels provide immediate deep or freshwater access. This is consistent with manatee habitat relationships found elsewhere.

Bottlenose dolphins (*Tursiops truncatus*) are found throughout the IRL including the Banana River. This population is considered to be primarily comprised of long term residents of the IRL and may be a genetically distinct stock. Their numbers are not particularly high in the DZ Judy area but they are commonly seen milling, cavorting and feeding.

3.4.4.2 Atlantic Ocean Sites

The coastline in the vicinity of PAFB and CCAFS is considered to be one of the most biodiverse along the southern U.S. Atlantic coast (Gilmore 1995). The tidal zone supports numerous species of invertebrates and fin-fish, in turn supporting larger predators including fish, birds, marine turtles and mammals.

The live/hard bottom habitats of worm reefs, including those in the vicinity of PAFB, the Oculina Banks, just off the east coast from Ft. Pierce to Cape Canaveral, and the nearshore hard bottom from Cape Canaveral to Broward County, have all been identified as Essential Fish Habitat (EFH). Essential Fish Habitat is described in more detail in the following section.

3.4.4.2.1 Essential Fish Habitat

Federally funded projects such as the 920th RQG Training Operations are required to address EFH requirements, as mandated by the 1996 amendments to the Magnuson-Steven Fishery Conservation and Management Act. Essential Fish Habitat can generally be defined as the waters and substrates necessary to fish for all or any stages of their life cycle. Regional Fishery Management Officials (FMOs) are responsible for designating EFH in their management plans for all managed species within the Exclusive Economic Zone, which is a managed fisheries area that extends from the shoreline to 200 miles (322 km) offshore along the coastline of U.S. waters. The South Atlantic Fishery Management Council (SAFMC) is the managing body for the marine area surrounding CCAFS and PAFB. The SAFMC currently manages for several types of fish and invertebrates in the vicinity of Cape Canaveral. These include the South Atlantic snapper-grouper species complex, penaeid and rock shrimps, coastal migratory pelagic species, red drum, spiny lobster, golden crab, calico scallop and *Sargassum*.

In addition to EFH designations, Habitat Areas of Particular Concern (HAPCs) have been designated within areas of EFH. HAPCs are localized areas that are vulnerable to degradation or are especially important ecologically. They are identified by fishery management councils and conservation priorities are set for these areas because they play important roles in the life cycles of federally managed fish species (Dobrzynski and Johnson 2001). The SAFMC has designated areas within the vicinity of Cape Canaveral as EFH-HAPCs for the species within its jurisdiction: penaeid and rock shrimps, red drum, snapper-grouper species complex, coastal migratory pelagic species, *Sargassum*, and live/hard bottom habitat.

Essential fish habitat and HAPCs for species found within the waters off of Cape Canaveral are listed below. Unless otherwise stated, the source of the following information is SAFMC (1998).

Essential fish habitat for the snapper-grouper species complex includes coral reefs, live/hard bottom habitats, submerged aquatic vegetation, artificial reefs, and medium to high profile outcroppings on and around the shelf break zone from shore to at least 600 feet (at least 2000 feet for wreckfish). This EFH crosses through all of the WTAs related to the current EA. Included as EFH is the spawning area above the adult habitat and the additional pelagic environment, including *Sargassum*.

Areas inshore of the 100-foot contour, estuarine emergent vegetated wetlands, tidal creeks, estuarine scrub/shrub, oyster reefs and shell banks, unconsolidated bottom (soft sediments), artificial reefs, coral reefs, and live/hard bottom habitats are also EFH for specific life stages of estuarine dependent and nearshore snapper-grouper species. All of the WTAs (Cavallo, WP44, WP45, Rick Smith, Bill Sutton and DZ Judy in the Banana River) each have one or more of these characteristics and therefore are located in EFH for the snapper-grouper species complex.

Essential Fish Habitat for penaeid shrimp includes inshore estuarine nursery areas (these are also designated as HAPCs), offshore marine habitats used for spawning and growth to maturity, and interconnecting water bodies. Therefore all the WTAs are located in EFH for the penaeids. Essential Fish Habitat for rock shrimp consists of offshore terrigenous and biogenic sand bottom habitats found at depths of 58 to 582 ft (18 to 182 m). These are found within the WTAs WP44, WP45, Rick Smith, Bill Sutton and Cavallo.

Essential Fish Habitat also includes the shelf current systems near Cape Canaveral, Florida, which provide major transport mechanisms affecting planktonic larval rock shrimp. The Oculina Bank HAPC may serve as nursery habitat and provide refuge for rock shrimp.

Essential Fish Habitat for coastal migratory pelagic species includes sandy shoals and offshore bars, all coastal inlets, designated nursery habitats, and high

profile rocky bottom and barrier island ocean-side waters. This extends from the surf to the shelf break zone from the Gulf Stream shoreward, including *Sargassum*. All of these habitats are found either at or in the vicinity of the WTAs.

The worm reefs (*Phragmatopoma* sp) and the nearshore hard bottom south of Cape Canaveral have been identified as EFH-HAPCs. These are found within WTAs WP44, WP45, Rick Smith and Bill Sutton.

Essential Fish Habitat for red drum exists in each of the WTAs, from the Banana River (DZ Judy) and out to the furthest offshore sites. Essential fish habitat for spiny lobster and the golden crab includes all of the Atlantic WTAs.

Essential Fish Habitat and HAPC for pelagic *Sargassum* is where it occurs in the Exclusive Economic Zone and state waters, which essentially covers all the WTAs.

3.4.4.2.2 Cetaceans

All cetaceans are protected under the Marine Mammal Protection Act (MMPA) of 1972, and several are listed under the ESA. There are five endangered whale species that have the potential to be in the vicinity of Cape Canaveral, PAFB, and the WTAs. They include the finback, humpback, northern right, sei, and sperm (Table 5). The northern right whale is the predominantly sighted of these five, due to its preference for nearshore waters in the region.

The only known calving area of northern right whales (*Eubalaena glacialis*) is the shallow coastal waters from Savannah, Georgia to Melbourne Beach, Florida. These waters were designated as critical habitat for this species in June 1994. The critical habitat extends along that coastline from shore out to five miles. Sightings of right whales often occur between 10 to 15 miles (16 – 25 km) from the false cape of Cape Canaveral. Pregnant right whales come to the area to calve and sightings occur between November and March. Pregnant females with calves and cavorting groups of adult males have been sighted in these waters. The WP44 and WP45 WTAs are located directly on the edge of the Right Whale Critical Habitat, 5 miles offshore from PAFB.

The critical habitat designation serves to alert public and private entities of the importance of the areas, but does not restrict human activities within an area or mandate any specific management or recovery action. Right whales are vulnerable to ship strikes and in February 1997, the National Oceanographic and Atmospheric Administration's (NOAA) Fisheries Service implemented a regulation to minimize boat disturbance of right whales by restricting vessel approaches. These regulations prohibit all approaches within 1,500 ft (1372 m) of any right whale, whether by ship, aircraft or other means. Exceptions exist for emergency situations and where certain authorizations are provided (NMFS 2002).

The coastal and offshore stock of bottlenose dolphins, as well as other small cetaceans, are expected to be observed on occasion in the Atlantic WTAs. All of these species are protected under the MMPA.

3.4.4.2.3 Sea Turtles

Sea turtles of various age classes are considered common in the waters off of PAFB and CCAFS. Species utilizing the coastal waters near the training areas include the loggerhead, green, leatherback, hawksbill, and Kemp's ridley, (Tables 4 & 5). Primary threats to sea turtles on the local coastal beaches include exterior lighting (visible from the beach causing disorientation of nesting adults and hatchlings) and depredation of eggs/hatchlings by predators. Other in-water threats include entanglement in debris and fishing gear, ingestion of debris, boat strikes, and various predators.

The loggerhead is the most common nesting sea turtle on the beaches of CCAFS and PAFB. It is Federally listed as a threatened species. Each year, between May and September, over 3,000 loggerhead nests are deposited along the beaches at CCAFS and PAFB. The five-year average for loggerhead nests on CCAFS and PAFB is 2786 and 1450, respectively. Annual loggerhead nesting densities range from about 60 to 300 nests per kilometer at these installations. Developmental habitat for small juvenile sea turtles are the pelagic waters of the North Atlantic and the Mediterranean Sea. There is no critical habitat designated for the loggerhead sea turtle.

The green sea turtle population along the Florida east coast and the Gulf of Mexico are federally listed as endangered species, and can be found in near and offshore environments. Green turtle nesting in the vicinities of the Proposed Action (CCAFS and PAFB beaches) typically occurs from June to September. The five-year average for green sea turtle nests on CCAFS and PAFB is 53 and 20, respectively. Young green turtles can be found regularly among the rocks of local jetties as well as the worm rock reefs described previously in Section 3.4.4.2.1. Principle U.S. nesting areas for green turtles include eastern Florida, predominantly Brevard through Broward counties (Ehrhart and Witherington 1992). Critical habitat in the U.S. for the green sea turtle has only been designated for the waters surrounding Isla Culebra, Puerto Rico and its associated keys.

The critically endangered leatherback (*Dermochelys coriacea*) is considered a regular, although not abundant nester on Florida's beaches (Pritchard 1992). The five-year average for leatherback nests on CCAFS and PAFB is 2 and 1, respectively. Like the green turtle, leatherbacks are sensitive to exterior light and have demonstrated a preference for dark beaches for nesting. Large numbers of leatherbacks have been observed during pelagic surveys with a summer concentration in waters near Cape Canaveral (Pritchard 1992). Most leatherbacks (94.5%) are observed over water 66-132 ft (20-40 m) in depth. Aerial surveys conducted from March 1982 to August 1984 near Cape Canaveral

resulted in 90.6% of leatherback sightings occurring during the summer (Schroeder and Thompson 1987). Later aerial surveys demonstrated high numbers during the winter month of February in 1988 with peak densities reported along 80 km (49 miles) of coastline between Daytona Beach and Cape Canaveral (Knowlton and Weigle 1989). Few leatherback sightings were reported in winter prior to 1988 and the cause for the winter increase in sightings is unknown. In 1993 (final rule implemented 1995), NOAA Fisheries established a Leatherback Conservation Zone to restrict shrimp trawl activities from the coast of Cape Canaveral, Florida, to Virginia. This enables short-term closures when high concentrations of normally pelagic leatherbacks are recorded in coastal waters where the shrimp fleets operate. The only critical habitat designated for any of the marine turtles in U.S. waters is for the leatherback sea turtle at Sandy Point, St. Croix, U.S. Virgin Islands and surrounding waters (USFWS 1999).

All of the above species could be found at some time within the WTAs as either adults in migration or forage periods and as hatchlings leaving the coastal waters heading for the Gulf Stream between June and October of each year.

3.5 Safety

The primary safety topics considered in this EA include safety risks associated with potential fuel spills resulting from in-flight refueling operations and flight risks associated with military flight operations. Issues associated with materials used during WTA operations are discussed in Section 2.2 and its subsections. Flight risks apply to all aircraft and are not limited to the military. Flight safety is summarized below in the context of aircraft mishaps, bird-aircraft strike hazard (BASH), and in-flight refueling.

The following information regarding aircraft mishaps was obtained from USAF 1999 unless otherwise stated.

The Air Force defines four categories of aircraft mishaps: Classes A, B, C, and High Accident Potential. Class A mishaps are those that result in either loss of life or permanent total disability, a total cost in excess of \$1 million, destruction of an aircraft, or damage to an aircraft beyond economical repair. Class B mishaps do not result in fatalities but result in permanent partial disability or cause damage costing between \$200,000 and \$1 million. Class C mishaps involve costs of \$10,000 to \$200,000 or the loss of worker productivity of more than eight hours. High Accident Potential mishaps represent minor incidents not meeting any of the criteria for A, B, or C and involve minor damage, minor injuries, and little or no property or public interaction.

Based on historical data of mishaps at all military installations and under all conditions of flight, DoD calculates a Class A mishap rate per 100,000 flying hours for each type of aircraft in the inventory. The lifetime Class A mishap rate for the HH-60 helicopter is 3.57 per 100,000 flying hours, and the HC-130 lifetime Class A mishap rate is 0.31 per 100,000 hours.

The Air Force BASH program was established to minimize the risk of bird and aircraft collisions and the subsequent loss of life and property. For airspace used by the 920th RQG aircrews, the risk of bird-aircraft strikes varies throughout the year. As a result, pilots and safety officers continually evaluate BASH potential. The 45SW BASH Operations Plan 91-212 addresses measures that must be followed when bird-strike conditions are deemed moderate to severe. During severe bird-strike conditions, flight restrictions are imposed. The Air Force Safety Center BASH team has developed a Bird Avoidance Model (BAM) that quantifies risk levels for bird-aircraft strike potential.

The 920th RQG currently follows all established procedures for in-flight refueling operations, and separation is maintained between aircraft to minimize flight risks.

Additional information regarding aircraft safety is described in the referenced EA (USAF 1999, 3-21- 3-24).

3.6 Aesthetics

3.6.1 PAFB

Land at PAFB is mostly developed and dominated by the large airfield. Large administrative areas are located north of the airfield and in the SE quadrant of the base. A golf course and marina are located in the SW section of the base. Family camping and picnic areas are present along the Banana River and there are four designated recreation areas on the Atlantic Ocean.

The majority of coastal land at PAFB is relatively undeveloped. Exceptions include the Officers' Club, Non-Commissioned Officers' Club, some base housing, and a radar site near the south end of PAFB.

Large numbers of local residents with military identification visit PAFB annually to use the services available such as the Commissary, Base Exchange, Medical Clinic, and those discussed above. The public's view of PAFB is limited to what may be seen from SR A1A, the Atlantic Ocean, and the Banana River. Marine traffic consists mainly of recreational boaters, cruise ships, transportation and fishing vessels.

3.6.2 CCAFS

Much land on CCAFS remains fairly undeveloped. The most significant man-made features are the launch complexes and various support facilities. These developed areas are surrounded by disturbed grasses, oak hammocks, and scrub vegetation. Most of CCAFS outside of the developed areas is covered with native vegetation.

Cape Canaveral Air Force Station is bordered by approximately 13 miles (21 km) of the Atlantic coastline on the east and approximately 12 miles (19 km) of

riverine shoreline on the west. Since public access to CCAFS is prohibited, viewpoints are primarily limited to boat traffic to the east and west and small communities to the south. However, marine traffic is limited and public observation of the coastline is infrequent. Marine traffic consists mainly of transportation and fishing vessels, pleasure boats, and cruise ships. From the south, launch complexes can be viewed from various beach areas, Port Canaveral, and small communities including the cities of Cape Canaveral and Cocoa Beach.

3.6.3 APAFR

Development on APAFR is limited. Approximately 82,000 acres (33,184 ha) are open for public access on a regular basis for hunting, hiking, fishing, and camping. A 33-mile (53 km) section of the Florida National Scenic Trail begins north of APAFR and passes through the site. Habitats include oak scrubs with sand pine, turkey oak sandhills, mature oak hammocks, dry pine flatwoods, dry prairies, planted pine plantations, and hardwood swamp forests as well as permanent water bodies including Lake Arbuckle and the Kissimmee River.

3.6.4 TSR

Most of the land at TSR is undeveloped. The 34,000 acres (13,759 ha) consist of a mix of pine flatwoods, marshes, hardwood hammocks, and swamps. The forested uplands support white-tailed deer, bobcat, fox squirrel, bald eagle, gray fox, turkey, hawks, owls, and many species of songbirds. The reserve also contains a variety of rare and endangered species of flora, including orchids and hand ferns. The landscape is open to hiking, biking, primitive back-pack camping, nature study, horse-back riding, and fishing. Limited hunting by special permit is allowed by the Florida Fish and Wildlife Conservation Commission. Fisherman enjoy TSR's unique access to the St. Johns River along its eastern border.

3.6.5 The Atlantic Ocean

Recreational and commercial fishing occurs throughout the local waters. Small numbers of recreational boaters and occasional shrimp trawlers can be found near the WTAs WP44 WP45, Rick Smith and Bill Sutton. Fishing and diving occurs at Rick Smith, Bill Sutton, and the eastern edge of Cavallo. The majority of Cavallo is over very deep waters that support various types of recreational offshore and commercial fishing.

3.6.6 The Banana River

The Banana River supports recreation and commercial fishing. The eastern shore of south Merritt Island and the southern end of the Newfound Harbor Area are adjacent to DZ Judy and could be visually impacted by WOPs. There are 91 residences in the two areas that could be visually affected by 920th RQG operations in DZ Judy.

3.7 Land Use

Land use generally refers to human modification of land, often for residential or economic purposes. It also refers to the use of land for preservation or protection of natural resources such as wildlife habitat, vegetation, or unique features. Human land uses include residential, commercial, industrial, agricultural, and recreational uses, while unique natural features are often designated as national parks, national forests, wilderness areas, or national wildlife refuges.

Attributes of land use include general land use and ownership, land management plans, and special use areas. Land ownership is a categorization of land according to type of owner. The major land ownership categories include federal, Indian, state, and private. Federal lands are further described by the managing agency, which may include the FWS, U.S. Forest Service, or DoD. Land uses are frequently regulated by management plans, policies, ordinances, and regulations that determine the types of allowable activities or protect specially designated or environmentally sensitive uses (i.e., EFH, Class III waters, etc.) Special Use Land Management Areas are identified by agencies as being worthy of more rigorous management.

The water training areas used by the 920th RQG all support recreational activities and commercial fisheries to varying degrees as described above.

The following sections briefly discuss the land and water that underlies the airspace and training areas used by the 920th RQG with an emphasis on special and primary land use. Also addressed are other sensitive noise receptors underlying the airspace (such as urban areas) that could be affected by the proposed action.

3.7.1 PAFB

Land use at PAFB is dominated by the 387-acre (157 ha) airfield. The airfield is bounded by the main base to the north and a golf course and wooded area to the south and west. Average elevation of the base is 9 feet (2.7 m) above mean sea level (MSL). Administrative facilities, including 45SW command facilities, account for 58-acres. Smaller commercial, community services, housing, and industrial facilities are also concentrated in this area just north of the airfield. Another large administrative parcel, containing the Air Force Technical Applications Center building, is located in the SE quadrant. The Community Center, including the Commissary, Base Exchange, and Medical Clinic, is located at the southern end of PAFB.

Outdoor recreation areas include the golf course and marina in the southwest, family camping and picnic areas along the Banana River, and four designated recreation areas on the Atlantic Ocean. Family housing is divided into three distinct neighborhoods: North Housing, Central Housing, and South Housing.

South housing is located approximately 3 miles south of the Base on a separate parcel of land.

3.7.2 CCAFS

Land use at CCAFS is planned and managed by requirements to support highly hazardous, large-scale missile test and launch activities. Existing land use is divided into five major zones: Missile and Launch Support, Restricted Development, Port Operations, Industrial, and Area Air Field Operations.

Missile and launch support and restricted development zones account for approximately 88% of the total land use inventory (Cape Canaveral Air Station, Florida, General Plan, 1996).

3.7.3 APAFR

APAFR is located in a rural area of south central Florida, approximately 95 miles (153 km) ESE of Tampa and 70 miles (113 km) SSW of Orlando. The closest community is Avon Park, located 9 miles (14 km) west of APAFR.

APAFR's 106,110 acres (42,941 hectares) includes 82,393 acres (33,343 hectares) of natural plant communities, defined as mesic and wet flatwoods, dry and wet prairies, floodplain marsh, scrub, and seepage slopes. Pine plantations account for 19,728 acres (7,984 hectares), and tame grass pasture covers 1,790 acres (724 hectares). The remaining 3,989 acres (1,614 hectares) include the improved and semi-improved grounds of the cantonment area and the airfield. Of APAFR's 106,100 acres, a total of 95,801 (38,769 hectares) is leased for cattle grazing. Approximately 82,000 acres (33,184 hectares) of the range is open for public access on a regular basis for hiking, hunting, fishing, camping, and other related activities. The installation produces approximately \$750,000 in revenues from hunting and fishing, logging, and grazing leases (NMFWA 2000).

Only the cantonment area and Bravo and Charlie range areas are excluded from cattle leasing. Approximately 20,000 acres (8,094 hectares) of APAFR is managed for the production of forest products.

Designated areas have been assigned for munitions training by the 920th RQG and other DoD groups at APAFR (Figure 3). Two class A Target Complexes (Avon North Conventional and Avon South Conventional), two class B Target Complexes (Delta and Avon South Conventional), and one class C Target Complex (Avon North Tactical) lie within APAFR. Air Force Instruction 13-212 describes training on weapons ranges and establishes procedures and criteria for using the assigned ranges at APAFR.

3.7.4 TSR

Tosohatchee State Reserve's 34,000 acres (13,759 hectares) remain largely undeveloped. Land use at Tosohatchee is dominated by outdoor recreation

including hiking, biking, primitive back-packing, fishing, and horse-back riding. Limited hunting is available with special permit from the FFWCC. The reserve also offers a unique camping facility for horseback groups as well as youth camps for youth organizations and scouting groups.

3.7.5 AR Tracks

The land under AR Track Marian includes parts of Okeechobee and Osceola Counties. Land use is residential and commercial.

The Atlantic Ocean lies beneath AR Track 15 Victor. Land use in this area is recreational and commercial (fishing).

The table below summarizes the land use at the various training areas and in the ROIs.

Table 8. Land Use at Training Areas and Their ROIs

	Recreation/ Hunting/Fishing	Commercial Fishery	DoD	Residential
DZ Judy	X	X		X
DZ Rick Smith	X	X		
DZ Bill Sutton	X	X		
DZ Ronnie Cavallo	X	X		
DZ Ferreira			X	
DZ Hardluck			X	
DZ Bam Bam	X		X	X
WTA Area WP44	X	X		
WTA Area WP45	X	X		
TSR LZs	X			X
APAFR LZs/Munitions	X		X	
AR Track Marian	X			X
AR Track 15 Victor	X	X		

3.8 Air Quality

Air quality in a given location is described by the concentrations of various pollutants present in the atmosphere. National Ambient Air Quality Standards (NAAQS) have been established by the U.S. Environmental Protection Agency (EPA) for six criteria air pollutants: carbon monoxide, nitrogen dioxide, sulfur dioxide, particulate matter equal to or less than 10 micrometers in diameter, ozone, and lead. The NAAQS represents the maximum levels of background pollutants that are considered safe, with an adequate margin of safety to protect public health and welfare.

In addition to NAAQS, the Clean Air Act of 1990 established a national goal of preventing further degradation or impairment of visibility within federally designated attainment areas. Attainment is an EPA term used in the U.S. designating areas as having air quality better than the NAAQS. Areas with air quality worse than the NAAQS are in non-attainment. Attainment areas are classified as Class I, II, or III and are subject to the Prevention of Significant Deterioration program. Mandatory Class I status was assigned by Congress to national wilderness areas, national memorial parks larger than 5,000 acres (2,023 ha), national parks larger than 6,000 acres (2,428 ha), and all international parks. Class III status is assigned to attainment areas to allow maximum growth while maintaining compliance with NAAQS. All other attainment areas are designated Class II.

Section 3.5 beginning on page 3-25 of USAF 1999 discusses the topic of air quality. The ROI for air quality concerning the 920th RQG activities includes the associated airspace of the proposed WTAs, helicopter AR tracks, munitions training areas, LZs, and DZs. Air quality in Florida is monitored by the Florida Department of Environmental Protection. Monitoring sites for the six criteria pollutants are widely dispersed throughout the state, typically near urban areas. The referenced EA (USAF 1999) shows National and State Ambient Air Quality Standards in Table 3.5-1 on page 3-29.

The training areas and their associated ROIs used by the 920th RQG are considered Class II attainment areas.

3.9 Hazardous Wastes

The water training areas used by the 920th RQG are also used by recreational boaters and commercial fisherman. No known hazardous wastes currently exist in these areas. Tosohatchee State Reserve is open for public access and does not contain hazardous waste in the landing zones of the 920th RQG. APAFR, PAFB, and CCAFS are all DoD installations and at many times do have hazardous waste within the installation boundaries. The training areas on CCAFS and APAFR used by the 920th RQG do not contain any hazardous wastes.

The ROI for hazardous wastes includes the ocean environment in the WTAs, marine waters beneath the Atlantic Ocean AR track, land beneath the drop zones, landing zones, and AR track Marian over Okeechobee and Osceola counties.

3.10 Cultural Resources

Cultural resources consist of prehistoric and historic districts, sites, structures, artifacts, or any other physical evidence of human activities considered important to a culture, subculture, or community for scientific, traditional, religious, or other social reasons. Cultural resources can be divided into three major categories: archeological resources (prehistoric and historic), architectural resources, and traditional cultural resources. Cultural resources will be described below for each location and ROI to be used by the 920th RQG for training operations. The ROI will be the same size as the training area.

3.10.1 PAFB

There have been no systematic archeological surveys of PAFB, and there are no recorded sites within the base boundaries. A National Park Service study to develop and gather cost estimates for cultural resource surveys for PAFB and six communication annexes was carried out over a three-day period in 1981. This reconnaissance study concluded that the two shorelines were severely disturbed due to filling and paving, and that the remaining property at the base was either

subject to extensive earth moving or was built over. It further concluded that the likelihood that significant sites were preserved was limited and no cultural resource survey was planned.

PAFB has only recently been the subject of intensive historic resource investigations. In 1993, 18 buildings were documented with Historic American Building Survey (HABS) Level IV standards as part of mitigation measures in compliance with Section 106 of the National Historic Preservation Act. Of these 18 buildings, three buildings (800, 400, and 430) were further documented at HABS Level II, and building 993 was documented at HABS Level III (Jenkins et al 1993). The *Historical and Architectural Documentation Reports of Patrick Air Force Base* (U.S. Army CERL 1994) completed HABS Level IV reports on all extant WWII buildings and structures and all post-1945 buildings and structures related to PAFB's Cold War mission. Each of these 150 buildings or structures was described, photographed, and assessed for National Register of Historic Places (NRHP) eligibility and current condition.

No historical resources exist in the ROI for DZ Bam Bam on PAFB.

3.10.2 CCAFS

Archeological investigations on CCAFS have yielded a total of 56 archeological sites, including two sites eligible for listing on the NRHP and 17 sites potentially eligible. In 1999, Archeological Consultants, Inc., completed a Phase II Test Excavation at 16 archeological sites to evaluate the significance of the sites in terms of eligibility criteria for NRHP listing. Eleven of the 16 archeological sites met the criteria for eligibility for NRHP listing. In a letter addressed to the 45SW (4 January 2000) the State Historic Preservation Office reviewed the eligibility determinations for these historic properties and concurred that these properties meet NRHP eligibility requirements.

Architectural and historical studies completed in the 1980s resulted in a discontinuous National Historic Landmark district consisting of six launch complexes and the Original Mission Control Center (Barton and Levy 1984). Later studies identified six additional launch complexes and the Lighthouse present and previous locations which are also eligible for the NRHP (McCarthy et al 1993).

The ROI for DZ Ferreira contains no archeological or historical resources.

3.10.3 APAFR

APAFR is unique in terms of cultural resource management. The range is located in an area of Florida in which little archeological research has been conducted. There is much confusion and debate over what occurred in this area during prehistory, but it has already been demonstrated that archeological sites located on APAFR have a rich potential to answer some of those questions.

By 1995, only 3,677.6 acres (1,488 ha), or 3.5% of the total area of APAFR, had been surveyed and inventoried for cultural resources. In 1995, 1996, 1997 and 1998 an additional 6,521.4 acres (2,639 ha), (6.15%), 5,976 acres (2,418 ha), (5.63%), 3,099.5 acres (1,254 ha), (2.92%), and 5,700 acres (2,307 ha), (5.37%) respectively were surveyed and inventoried for cultural resources. In 1999 and 2001, an additional 1,925 acres (779 ha), (1.8%) and 2,811 acres (1,138 ha), (2.65%) were inventoried for cultural resources. An historic building survey conducted in early 1996, which recorded several structures dating to World War II, was revised in 1999 to include all the structures on base that date to WWII in the list of potentially significant resources. At this stage of the program, a total of 29,710.5 acres (12,023 ha), (28%), of APAFR have been inventoried for cultural resources. The recorded resources include 30 structures, and 136 archeological sites. The resources provide evidence of land use and human habitation ranging from the late Paleo-Indian/Early Archaic period (12,000 years BP), up through World War II.

The resource types include World War II structures and target complexes, historic homestead sites, artifact scatters, shell and earth middens, turpentine distillery sites, Seminole War forts, prehistoric earthworks, and dugout canoes.

3.10.4 TSR

Cultural resources at TSR are archeological, consisting of Indian mounds and midden sites. Because most of the area is open to the public, the locations are not disclosed to prevent looting/disturbance of the sites.

The landing zones and associated ROIs of the 920th RQG have been carefully sited to ensure the cultural resources of TSR are not impacted.

3.10.5 Atlantic Ocean

There is very limited information available regarding shipwrecks in International Waters, i.e., DZs WP44, WP45, Bill Sutton, Rick Smith, and Ronnie Cavallo. Water depths in these areas range from 50 ft to 3,000 ft (15 m to 914 m).

4.0 ENVIRONMENTAL CONSEQUENCES OF PROPOSED ACTION

This section of the EA describes the potential environmental consequences of the proposed activities by comparing proposed project activities with the potentially affected environmental components. The region of influence (ROI) for the training operations includes DZ Bam Bam on PAFB, DZ Ferreira on CCAFS, TSR, Avon Park, a 2.5 mile (4.1 km) buffer around DZ Judy in the Banana River, and sections of varying size in the Atlantic Ocean near PAFB.

4.1 Airspace

The referenced EA (USAF 1999) discusses the topic of airspace use for similar aircraft training exercises (Page 4-1). For the 920th RQG, existing see-and-avoid procedures and avoidance measures for civil aviation airports would remain unchanged. Scheduling coordination, processes, and procedures currently used to manage existing military airspace are well established within the FAA and would need no modification to support continuation of the proposed action. Therefore, the proposed aircraft activities of the 920th RQG would not significantly impact general aviation in the region.

4.2 Noise

Environmental consequences resulting from noise from HH-60 and HC-130 aircraft were thoroughly evaluated in the referenced EA (USAF 1999, 4-5 through 4-11). Various noise models were used to model noise levels during water and land training operations and in helicopter air refueling tracks. As a result of these noise models, it can be concluded that no significant noise impacts are expected to occur as a result of the proposed action.

The potential exists for the homeowners within the ROI at all of the sites to hear the aircraft used for the 920th RQG's training operations. The 45SW Public Affairs office periodically receives complaints regarding aircraft noise during takeoffs and landings. No complaints have been attributed to the training operations of the 920th RQG. Complaints are most often received when larger aircraft (C-17, Navy P-3) are performing take off and landing operations tests at the PAFB runway.

The Merritt Island Airport is located south of Highway 520 off State Road 3 in Merritt Island. It is located just north of the residences on Merritt Island that are within the ROI for DZ Judy. Therefore, it is believed that these homeowners are accustomed to aircraft noise.

APAFR functions as a bombing range, and aircraft are constantly using the airspace surrounding the range. Therefore, the aircraft associated with the 920th RQG will have no significant impact at APAFR.

During wildlife counts and during hunting season, park personnel from TSR restrict aircraft access for the 301st RQS. Prior coordination of training operations is required with TSR personnel. Therefore, no significant impacts are anticipated at TSR from noise as a result of the 920th RQG training operations.

4.3 Water Quality

4.3.1 The Banana River

Minor, temporary but indiscernable effects on water quality would be expected at DZ Judy. Effects would be associated with the use of the outboard engines on the boats and zodiacs. Because of its significant recreational usage, the Banana River consistently contains boat traffic. The boats used for the 920th RQG training exercises will provide an insignificant effect on the water quality of the Banana River. Effects of expendables on water quality are discussed in Section 4.9, Hazardous Wastes.

4.3.2 The Atlantic Ocean

As discussed in Section 3.3.2, the water quality of the Atlantic Ocean is relatively constant. Potential variations are dissipated by dynamic mixing and the general circulation of seawater. Therefore, boat traffic and deployed items in WTAs WP44, WP45, Bill Sutton, Rick Smith, and Ronnie Cavallo will have an insignificant effect on the water quality in the Atlantic Ocean. Effects of expendables on water quality in the Atlantic Ocean are discussed in Section 4.9, Hazardous Wastes.

4.4 Biological Resources

Biological resources include flora and fauna in each training area used by the 920th RQG.

4.4.1 Terrestrial Flora

Terrestrial flora is vegetation found on the land. This section will discuss the environmental consequences to flora in each training area used by the 920th RQG.

4.4.1.1 PAFB

No construction or ground disturbing activities will occur at PAFB in support of the training exercises of the 920th RQG. The DZ is primarily mowed/maintained grass. No protected flora are found in the DZ or its ROI. Therefore, no significant impacts are expected from the training activities of the 920th RQG at PAFB.

4.4.1.2 CCAFS

No construction or ground disturbing activities will occur at CCAFS in support of the training exercises of the 920th RQG. The DZ is primarily mowed/maintained grass. No protected flora are found in DZ Ferreira or its ROI. Therefore, no significant impacts are expected from the training activities of the 920th RQG at CCAFS.

4.4.1.3 APAFR

The training operations of the 920th RQG involve no construction or ground disturbing activities. Since the ROI for land zones and drop zones have been carefully chosen and do not support any protected flora, no significant impacts are expected from the training activities of the 920th RQG at APAFR. Areas to be avoided are provided to the 920th RQG when they submit AF Form 813's to the Environmental Planning Group (OLA/CEVN) for upcoming training events (Appendix 4).

4.4.1.4 TSR

Landing zones for the 920th RQG were carefully chosen at TSR in coordination with Reserve personnel to ensure protected flora were not in the vicinity. Training operations involve no construction or ground disturbing activities. Therefore, no significant impacts are expected from the training activities of the 920th RQG at TSR.

4.4.2 Terrestrial Fauna

Terrestrial fauna includes animals found on the land. This section will discuss the environmental consequences to terrestrial fauna at the training areas of the 920th RQG.

4.4.2.1 PAFB

Impacts to fauna are similar to and were evaluated in the referenced EA (USAF, 1999, pg. 4-49 to 4-53). Training areas and protocols have been chosen and adopted to avoid or reduce impacts to protected fauna. The potential exists for protected fauna, including alligators, gopher tortoises, and bald eagles to be in the ROI, training area, or flight path during aircraft operations. It can be assumed that aircraft noise would alarm fauna and would cause them to leave the area. Aircraft noise should also cause birds to deviate out of the path of the aircraft. The AF BASH program addresses measures that must be followed when bird-strike conditions are determined to be moderate to severe. The BASH program was previously discussed in Section 3.5, Safety. Therefore, no significant impacts to protected fauna are expected from the training operations of the 920th RQG at PAFB.

Expended training-related debris (i.e., lightsticks, flares, sea dye packs) may accumulate along the shoreline or in coastal marshes at PAFB, but is not

expected to significantly impact terrestrial fauna. The accumulation of debris along the shorelines and in coastal wetlands, however, could impact the aesthetics of the area and will be discussed in Section 4.5 of this EA.

4.4.2.2 CCAFS

Impacts to are similar to and were evaluated in the referenced EA (USAF,1999, pg. 4-49 to 4-53). Training areas and protocols have been chosen and adopted to avoid or reduce impacts to protected fauna. Wildlife, including gopher tortoises, indigo snakes, alligators, and Florida scrub jays could potentially be in the ROI during aircraft landing or drops. Since a drop zone coordinator is always required to be in DZ Ferreira during equipment/personnel drops, it is believed that most animals and birds on the ground would be alarmed by the activity and would leave the area. Aircraft noise should also cause birds to deviate out of the path of the C-130. The AF BASH program addresses measures that must be followed when bird-strike conditions are determined to be moderate to severe. The BASH program was previously discussed in Section 3.5, Safety.

4.4.2.3 APAFR

Military training areas at APAFR have been carefully chosen to avoid impacts to protected species. The 920th RQG submits a request for environmental review, (AF Form 813) prior to each training operation to receive guidance on areas to avoid. APAFR Natural Resource personnel have access to GIS coverages depicting locations of threatened and endangered fauna and their nesting sites. This information is used to ensure minimal impacts to threatened and endangered fauna. Wildlife, including gopher tortoises, indigo snakes, red-cockaded woodpeckers, grasshopper sparrows, and Florida scrub jays could potentially be in the ROI during aircraft landing or drops. Aircraft noise, however, would alarm the animals and cause them to leave the area. Aircraft noise should also cause birds to deviate out of the path of the aircraft. Therefore, no significant impacts to threatened or endangered species at APAFR are expected by the proposed action.

4.4.2.4 TSR

Landing zones at TSR were meticulously chosen with Reserve personnel to avoid areas that are used by threatened and endangered fauna. Wildlife, including gopher tortoises, indigo snakes, eagles, and red-cockaded woodpeckers could potentially be in the ROI during aircraft landing. It is believed, however, that most animals and birds on the ground would be alarmed by the aircraft activity and would leave the area. Aircraft noise should also cause birds to deviate out of the path of the helicopter. Therefore, no significant impacts to threatened or endangered species at TSR are expected by the proposed action.

4.4.3 Aquatic Flora

4.4.3.1 The Banana River

Operations over and in the Banana River will not effect flora under nominal conditions. The water is deep enough to preclude rotor wash from HH-60s from affecting the bottom. Surface landings of the equipment would preclude any significant disturbance of the bottom. The lack of flora underlying DZ Judy and the substantial distance to the nearest seagrass beds eliminates this issue in terms of significant impacts. Therefore, impacts to marine flora would not be expected in this area.

4.4.3.2 The Atlantic Ocean

Operations over the Atlantic Ocean WTAs are not expected to significantly effect the flora under nominal conditions. *Sargassum* mats are considered EFH and will be avoided by the 920th RQG. The potential fuel spills along the AR tracks could have impacts on species or habitats but, as described in USAF 1999 on pages 4-57 and 4-58, are highly unlikely events. At the altitude refueling is conducted, most or all of the fuel spilled would evaporate before reaching the surface of the water below. USAF 1999 estimated that the amount reaching the water's surface during an accidental spill of 34 gallons due to a severed fuel hose would average approximately 0.0002 ounces per square foot. The fuel used by these aircraft, JP-8, is a complex mixture of volatile alkanes and aromatics, and when released onto surface water, quickly evaporates. If any fuel were to reach the water surface, it would be limited to the surficial layers of the water column. Therefore, the benthic environment would not receive direct exposure.

4.4.4 Aquatic Fauna

Potential impacts to aquatic fauna similar to the 920th RQG activities were evaluated in detail in the referenced EA (USAF 1999, pages 4-54 to 4-81). This section will discuss the environmental consequences.

4.4.4.1 Banana River Site

Operations over and in the Banana River are not expected to affect the fauna under nominal conditions. The water is deep enough that rotor wash from HH-60s and surface landings of the equipment would preclude any significant disturbance of the bottom or benthic inhabitants.

The absence of SAV and general lack of use by protected species in the drop zone further reduces risks of adverse impacts. Although manatee aerial surveys and telemetry data show no use of DZ Judy, the pre-operation clearance activity allows the RQG to evaluate the site and "safe" it prior to its use. This would be true for dolphins and other species as well.

Standard operating procedure requires the 920th pilots to sweep the area via helicopter or with the associated recovery boat (see Sections 2.2.1.1 and 2.2.2.1) prior to commencement of operations. The primary goal of the sweep is to ensure that the target area is clear of fishermen or any other persons, but also incorporates a visual inspection for protected species. Pilots are directed to perform a low, first pass at approximately 200 to 300 feet (61 to 91 m) AWL at speeds of 70 to 100 knots for the survey. If a protected species is seen in the drop zone, operations do not commence until the animal(s) have moved outside of these areas. If animals or other concerns are noted, the RQG is able to shift to another site within the zone prior to initializing the drops or wait for the animal to leave the area.

Approximately 23 lightsticks are used per training exercise in DZ Judy. This would equate to approximately 3,500 lightsticks deployed per year by the 920th RQG in this DZ. However, since standard operating procedure calls for post-operational clean up of lightsticks, this reduces the potential for pollution or ingestion by wildlife.

For those lightsticks that might not be retrieved in DZ Judy, USAF (1999) evaluated environmental consequences to marine mammals or other megafauna (pages 4-72 and 4-74). It was determined that it is unlikely that contact with a spent lightstick would result in exposure to the chemical contents as the housing is a tough, pliable plastic. If the casing were broken, either through degradation over time or physical destruction (such as a bottlenose dolphin or manatee chewing through the casing during play or feeding), the enclosed small quantity of chemicals would disperse rapidly. The compounds within the spent lightstick are relatively inert, and those chemicals (such as hydrogen peroxide) within unspent lightsticks are not present in sufficient quantities to cause more than short-term, localized irritation to mucous membranes of the mouth or eyes.

While there might be some risk of injury to marine mammals if they ingest the sharp plastic or glass shards of a broken lightstick, this would be an unlikely scenario due to the large area over which the lightsticks are released. There are no records of dolphins or manatee deaths resulting from ingestion of lightsticks and ingestion of foreign objects by cetaceans in the wild does not appear to be a common occurrence.

4.4.4.2 The Atlantic Ocean

Debris ingestion and entanglement is an ongoing threat to sea turtles and marine mammals. Pollution is known to have both direct (ingestion of foreign materials such as tar balls and plastics) and indirect (degradation of foraging grounds) impacts. Foraging habitat loss also occurs as a result of direct destruction by dredging, siltation, boat damage, and other human activities. Turtles are often captured and occasionally killed by interactions with fishing gear. Collisions with power boats and encounters with suction dredges have killed turtles along the U.S. coast and may be common elsewhere where boating and dredging activities

are frequent (Florida Marine Research Institute, Sea Turtle Stranding and Salvage Network Database 2001). Threats also include increasing incidences of disease, which may or may not be influenced by human actions.

Debris from the operations include parachutes from flares, chaff strands from flares, and lightsticks. As mentioned above, none of these items have been documented as ingested by sea turtles or marine mammals. Chaff strands are too fine to block the digestive tract, and are non-toxic. NOAA Fisheries has evaluated the potential for harm as a result of incidental ingestion of chaff by sea turtles. Based upon information provided in the *Marine Station Cherry Point Biological Assessment (BA) for Ongoing Ordnance Delivery at Bombing Target 9 and Bombing Target 11* (2001) found in Appendix 5 of this document and consultation with veterinary scientists, NOAA Fisheries concluded that there is no significant or measurable likelihood of harm as a result of chaff fibers which fall into the waters during training exercises. The BA also concluded the same for other debris (flare parachutes, etc.) that are left in the water following each exercise.

Airborne and waterborne emissions from the project are not expected to have an impact on any listed marine species.

Boat operations could have the potential to impact sea turtles or marine mammals by striking the animal. However, 920th RQG manned boats have no greater chance of striking an animal than does a recreational boat. Since 920th RQG personnel would be constantly surveying the surrounding water during training exercises, it is more likely that they would see the animal and be able to avoid it. Observant boat operators running at recommended speeds within each zone would further reduce risks of boat strikes.

A fuel spill from the RAMZ craft or the recovery boat could potentially occur but would likely involve light-fraction hydrocarbon fuels that would evaporate and disperse rapidly in the environment. Marine craft used by the 920th RQG represent a very small percentage of the boat traffic in the Banana River and the Atlantic Ocean due to the amount of recreational and commercial usage.

A more detailed discussion of potential impacts to Essential Fish Habitat (EFH), cetaceans, and marine turtles from the training activities of the 920th RQG follows.

4.4.4.2.1 Essential Fish Habitat

The use of marine location markers (i.e., flares, lightsticks, and sea dye packs) during search and rescue training operations in the Atlantic Ocean would result in the addition of these items or their by-products into the marine environment. Due to the dispersed nature of training operations within the WTA and the rapid dispersion and dilution of the by-products of any of the marine location markers, impacts to essential fish habitat would not be significant.

USAF 1999 discussed the potential for a fuel spill during training exercises. They concluded that the effect of the spill on marine fish would probably be minimal based upon the relatively small area affected and the weathering and dispersal of the spill. Effects would be limited to the water's surface thereby protecting the water column environment from direct exposure. Additionally, evaporation would significantly reduce the likelihood of marine fish encountering the fuel. Therefore, based on the evaporation and dispersal coefficients, the environmental impacts from any potential fuel spills would not be significant.

4.4.4.2.2 Cetaceans

The blue, finback, humpback, sei, and sperm whales are not expected to be affected by activities conducted at the project site. The whales are very large animals that prefer deeper, oceanic waters and are unlikely to occur in the relatively shallow waters of the action area. An exception to this is the right whale and other smaller cetaceans, and therefore the potential for impact is considered. The Northern Atlantic right whale is listed as endangered under the ESA, and has a population estimate of only around 300 individuals for the western North Atlantic. The actions to reduce adverse effects as detailed above should make an interaction with a right whale extremely unlikely. As a result, the Northern right whale is not likely to be adversely affected by these activities.

If a fuel spill were to occur from the recovery boat or RAMZ craft used by the 920th RQG, the effect of the spill on cetaceans would be expected to be minimal. Because of the pre-exercise sweep of the area for marine mammals and boaters, it is doubtful a cetacean would be in the area in the unlikely event of a spill. If an animal did happen to be in the area, weathering and evaporation of the spill should preclude any direct impacts.

4.4.4.2.3 Sea Turtles

Sea turtle species are far more likely to be found in the action areas of the Atlantic, with the most common being the loggerhead, green, and leatherback sea turtles. Lighting effects from the project are expected to be minimal as use of night vision equipment is standard during night operations. Nesting beaches are within 5 miles of the Atlantic WTAs. Flares are utilized during the training operations but illumination is brief and at the water surface.

As discussed in USAF 1999, the degree to which sea turtles are affected by a fuel spill depends on the specific composition of the hydrocarbon in the fuel, the amount of weathering that occurs before exposure, and the duration of the exposure. Extended exposure can adversely impact marine turtle skin, tissues, sight, respiration, blood chemistry, and salt gland function. Turtles could ingest hydrocarbons when they surface to breathe. USAF 1999 concluded that because of the unlikelihood of an accidental fuel spill and the small area that would be affected by a fuel spill if one were to occur along with weathering and dispersal of

the spill, no significant impacts to sea turtles due to the proposed action would be observed.

4.5 Safety

Standard operating procedure for drop zones require that before training operations commence, the area is surveyed by boat or aircraft to ensure the drop zone is clear of fisherman or any other persons (see Sections 2.2.1.1 and 2.2.2.1). This sweep also allows a visual inspection for protected marine species.

An analysis of potential safety concerns for the proposed action was completed in the referenced EA (USAF 1999, pg 4-17 to 4-22). Topics discussed include flight risks (including inflight refueling) and concerns resulting from unretrieved expendables (flares and lightsticks). A discussion of each follows.

Flares used by the 920th RQG, also used by other Air Force Rescue Groups and the Navy, have been evaluated in previous NEPA documentation (USAF 1999). These documents have determined that flares do present certain safety hazards. The flares are composed of explosive and flammable materials, and if they are mishandled or unexpended they could create unintended fires or cause injury to the handler. The referenced EA (USAF 1999) estimates that approximately 5% may be unexpended. These flares would either wash onshore, sink to the ocean bottom, or remain at sea. Any of these scenarios could result in injury to the public. The flares used by the Air Force and the Navy are marked with warning language and instructions to contact an appropriate safety officer. The small quantity of potentially unexpended flares used and the large area in which the flares are deployed decrease the likelihood that a person would encounter an unexpended flare. Therefore, no significant safety impacts would occur from deployment of flares.

Unrecovered lightsticks deployed during night water operations (NWOPs) would not represent a safety risk to the public because they are not considered toxic to humans (see Section 4.8, Hazardous Materials and Wastes). They could, however, impact the aesthetics of the area and will be discussed in the following section (Section 4.6). Section 4.3.4 of this EA, Aquatic Fauna, discusses potential impacts to marine animals from unretrieved lightsticks. No significant safety impacts would occur from deployment of lightsticks in WTAs.

4.6 Aesthetics

Cumulative effects to area aesthetics, or visual setting, were evaluated in USAF 1999 on pages 4-44 to 4-48. The training operations of the 920th RQG are identical to those described in the referenced EA. Impacts of aircraft overflights to the visual environment of an area are difficult to quantify due to the problems associated with separating such impacts from the noise of aircraft overflights. In most cases, aircraft are not noticed visually until aircraft noise is heard. The

nature of the impact depends on the sensitivity of the resource affected, the distance from which it is viewed, and the length of time it is visible. Altitude and screening relative to the viewer also play a key role in determining impacts from aircraft overflights. Water operations are only performed after a visual inspection of the area reveals that no boats or vessels are in or around the training area.

4.6.1 PAFB

Since PAFB is an active military base, the visual setting of the area nearly constantly includes aircraft landing and taking off from the runway. Residents of the base are accustomed to seeing and hearing aircraft. The training activities of the 920th RQG will not cause a significant increase in aircraft at PAFB, and therefore, will not negatively affect the aesthetics of the base.

4.6.2 CCAFS

Aesthetics at CCAFS often include aircraft in the area. Its nearly 16,000 acres (6,475 ha) are not open to the public. Aircraft conducting training operations at DZ Ferreira would not be visually apparent to the community except during transit between CCAFS and PAFB. Therefore, the training activities of the 920th RQG would not provide a negative affect to the aesthetics of CCAFS.

4.6.3 APAFR

Approximately 82,000 acres (33,184 ha) of APAFR are open to public access on a regular basis for outdoor recreational activities. APAFR is divided into 17 separate management units. When training activities are scheduled for these management units, they are closed to the public. On some occasions, the entire installation is closed for military exercises. Therefore, the visual setting viewed by the public should not be significantly impacted as a result of training operations at APAFR.

There are no specifically designated recreation areas or unique natural features located beneath AR Track Marian or AR Track 15 Victor. Air refueling is also conducted at altitudes that should not be visible to the public. Therefore, no mitigation is required for aesthetics in AR tracks used by the 920th RQG.

4.6.4 TSR

The landing zones selected at TSR were chosen for their remoteness and inaccessibility by the public to avoid any visual impacts. No items are deployed during landing activities. No ground disturbance or construction occurs to support this training. Therefore, training activities at TSR will not result in a significant impact to aesthetics.

4.6.5 The Atlantic Ocean

The Atlantic Ocean WTAs were chosen for their distance from shore (see selection criteria, Section 2.2). Therefore, aircraft activities would not be a visually dominant feature when seen from shore. Since CCAFS and PAFB are not open for public access, activities over land in these areas will not result in a significant impact to aesthetics as viewed by the general public.

As discussed in USAF 1999 (Page 4-44), flares, sea dye plastic wrappers, and lightsticks could be generated as waste and abandoned in the WTAs. Unrecovered items in the marine environment have the potential to affect the aesthetic quality of the environment. However, this quantity of waste would not result in significant impacts to recreation of the WTAs or adjacent shorelines. Furthermore, the majority of the lightsticks would be retrieved when search and rescue training personnel are in the water and whenever environmental conditions allow.

Expendable items such as lightsticks could pose an effect to aesthetics as shoreline debris (Section 4.9). However, this quantity of waste would not result in significant impacts to the aesthetics as these materials would be quickly dispersed throughout the training area and beyond. Lightsticks are also used by fisherman and recreational boaters, so any lightsticks that were to be found on the shore could not definitively be attributed to the 920th RQG. Therefore, expendables deployed by the 920th RQG would not result in a significant impact to the visual setting of the Atlantic Ocean and its shoreline.

4.6.6 The Banana River

A visual sweep of DZ Judy and the immediate vicinity occurs before training exercises. As discussed in Section 4.4.4.1, training does not occur if boats or protected marine species are in the area. This minimizes the chance that the training exercises of the 920th RQG in DZ Judy would impact the aesthetics for a recreation boat in the area. Section 4.2, Noise, discusses the potential for residents in homes bordering the Banana River in the ROI of DZ Judy to hear aircraft performing drops in DZ Judy. No complaints have been received by the 45SW Public Affairs office that are attributed to the 920th RQG, so it can be surmised that the training activities of the 920th RQG in the Banana River will not cause a significant impact to the aesthetics of the area.

As discussed in Section 2.2.1.1, every attempt is made to recover all expendables (lightsticks, sea smoke, etc.) deployed during training exercises. Therefore, expendable items should not cause a significant impact to the aesthetics of the Banana River.

4.7 Land Use

Establishment and use of the WTAs would not directly change the ownership, use, or management of any areas beneath the WTAs. The proposed action does not include any construction, land acquisition, or land withdrawal that could potentially result in such changes.

The introduction of flares, sea dye plastic wrappers, and lightsticks to the marine environment was also evaluated in the referenced EA for their effects on land use. It was determined that the quantity of waste would not result in significant impacts to land ownership or land status, general land use patterns, or land management practices in the WTAs as these materials would be quickly dispersed throughout the training area and beyond. Additionally, lightsticks would be retrieved when search and rescue training personnel are in the water and whenever environmental conditions allow. Therefore, no mitigation is required for land use due to the introduction of these expendables.

4.7.1 PAFB

No changes to overall PAFB land use would occur from use of the land DZs from the continued training exercises of the 920th RQG. The Proposed Action is fully compatible with the current and anticipated land use of these government owned areas, and is not expected to significantly impact land use in these areas.

4.7.2 CCAFS

No changes to overall CCAFS land use would occur from use of the land DZs from the continued training exercises of the 920th RQG. The Proposed Action is fully compatible with the current and anticipated land use of these government owned areas, and is not expected to significantly impact land use in these areas.

4.7.3 APAFR

No changes to overall APAFR land use would occur from use of the land DZs from the continued training exercises of the 920th RQG. The Proposed Action is fully compatible with the current and anticipated land use of these government owned areas, and is not expected to significantly impact land use in these areas.

Munitions expended during training exercises at the designated sites remain on site as part of APAFR standard operating procedures. These areas have been carefully chosen by APAFR personnel to avoid impacts to threatened and endangered species and cultural resources.

4.7.4 TSR

Proposed training activities at Tosohatchee State Reserve must be coordinated with the Park Ranger in advance to avoid conflicts during hunting events, wildlife counts, and prescribed burns. Notification is performed by telephone conversation. The areas used by the 920th RQG are not accessible to the public and would not affect recreational activities or change land use. Therefore, no environmental consequences are expected to land use at TSR.

4.7.5 AR Tracks

Establishment and use of the proposed helicopter AR tracks at APAFR and over the Atlantic Ocean would not directly change the ownership, use, or management of the area beneath the AR tracks, nor would it include activities such as construction, land acquisition, or land withdrawal that could potentially result in such changes. The referenced EA evaluated use of AR tracks in similar environments, and determined that the proposed use of AR tracks over WTAs and government owned land would not result in significant impacts to land use or any identified sensitive receptors.

4.8 Air Quality

Air emissions resulting from aircraft operations associated with actions similar to those proposed by the 920th RQG were evaluated in the referenced EA (USAF, 1999, pg. 4-23 to 4-30). This EA compared estimated air emissions with NAAQS and Florida Ambient Air Quality Standards (AAQS) to assess potential increases in pollutant concentrations. Since all of the project areas potentially affected by the proposed action are designated as being in attainment for all criteria pollutants, a conformity determination is not required.

Annual aircraft emissions and resulting estimated pollutant concentrations in WTAs were estimated in USAF (1999). Table 4.5-2 on page 4-25 of that EA presents the estimated criteria pollutant concentrations in the WTAs. The table illustrates that the aircraft emissions associated with the proposed search and rescue training operations would not cause an exceedance of the NAAQS or Florida AAQS.

The use of MK6 and MK25 flares in WTAs was also evaluated in USAF 1999. The flares contain identified hazardous and toxic constituents. These chemical pollutants include identified hazardous air pollutants (HAPs) defined by the EPA in Title III of the Clean Air Act. Smoke generated by the MK6 and MK25 flares is considered toxic in high concentrations. However, the large area in which the smoke would be released would reduce any impacts to air quality to insignificant levels through dispersion and advection. Additionally, the likelihood of exposure to smoke generated by the flares would be minimal due to the remoteness of the WTAs and the proposed low-density use of the flares. Impacts to air quality

within the WTA as a result of normal deployment of MK6 and MK25 flares would not be significant.

Table 4.5-3 on page 4-26 in the referenced EA depicts the estimated annual airspace emissions in a helicopter AR track. The table illustrates that aircraft activity in the AR track would contribute negligible amounts of emissions to the AR track ROI. The 920th RQG AR tracks are also in areas of attainment and would not cause an exceedance of the NAAQS. This also applies to landing zones, drop zones, and WTAs used by the 920th RQG. Therefore, air quality impacts associated with the use of the AR tracks, landing zones, and drop zones would not be significant.

4.9 Hazardous Wastes

Environmental consequences due to hazardous wastes have been described in the reference EA (USAF 1999, pg. 4-12- 4-16). The proposed action would generate various types of waste materials that are not considered hazardous within the various ROIs. Specifically, this includes sea dye packs, flares, and lightsticks. Though not considered hazardous, in sufficient numbers they could present a marine and shoreline debris issue in addition to potential aesthetic considerations. A discussion of each expendable follows.

In the water training areas that include deployment of zodiacs and pararescuers, lightsticks would be retrieved by search and rescue personnel whenever environmental conditions (e.g., wave size, wind speed, and ocean currents) allow.

Illumination provided by the lightsticks is generated by a chemical reaction that takes place when two solutions are allowed to mix. One of the solutions is stored in a very thin glass capsule that is easily broken by flexing or bending the tube. When the two chemicals mix, illumination occurs. Cyalume is the active ingredient that creates the illumination. Dimethyl phthalate is a component of cyalume and possesses a moderate potential to affect some aquatic organisms according to USAF (1999). However, it is not considered to be toxic to humans. Although it does not meet the criteria for a hazardous waste, hydrogen peroxide, one of the lightstick constituents, is an irritant to mammalian skin and mucous membranes at high concentration. Due to the high-density plastic used to seal the lightsticks, it is unlikely that the materials contained within the lightstick would ever be discharged to the environment. However, should this ever occur, no harmful effects to aquatic organisms would result, due to the fact that when diluted with a large amount of water, neither dimethyl phthalate nor hydrogen peroxide are expected to have significant impacts (refer to Section 4.4.4, Aquatic Fauna for further discussion of the potential effects lightsticks may have on marine animals).

USAF (1999) discusses the toxicity and reliability rate for sea dye packs and flares (pg. 4-12 and 4-13). The sea dye packs are a non-hazardous liquid dye

composed of soluble sodium salt of fluorescein. While the contents of the bag are non-hazardous, the container (a plastic bag) could remain suspended in the water column, sink to the bottom, or wash onshore. The bag is constructed of a molded, phenolic material. USAF 1999 discusses that even after a decade of weathering, the biodegradation of plastic occurs very slowly. This could pose potential impacts to marine turtles as described previously in Section 4.3.4. However, recreational and commercial activities generate large amounts of debris, including various forms of plastic in the Atlantic Ocean on an annual basis. The amount of plastic from sea dye packs resulting from 920th RQG training operations can therefore be accepted to be negligible.

Both types of flares used by the 920th RQG (MK25 and MK6) were evaluated for toxicity and reliability in USAF (1999, pg 4-13 and 4-14). That EA describes the flares as relatively safe. Issues involved with the use of flares are safety related and not a hazardous waste concern. Procedures for handling, storing, and maintaining the flares is found in *Air Force Technical Manual T.O. 11A10-26-7*. Safety concerns regarding MK6 and MK25 flares are addressed previously in Section 4.5.

4.10 Cultural Resources

4.10.1 PAFB

Ground disturbance for numerous projects over many years at PAFB have never revealed any cultural resources. Therefore, it has been determined that there are no archeological sites located at PAFB, negating any further evaluation. There are, however, historic structures at PAFB. Training areas used by the 920th RQG have been carefully chosen to avoid any impacts to the historic structures at PAFB. If a historic resource were to be impacted by the proposed action, the training activity would cease and the 45SW Cultural Resource Manager (45 CES/CEVP) will be notified to initiate consultation with the SHPO.

4.10.2 CCAFS

No impacts to archeological resources on CCAFS are expected from the Proposed Action. The nearest known archeological site is located on the western shore of CCAFS, approximately 2,400 ft (900 m) west southwest of DZ Ferreira. In the event of an incidental discovery of archeological resources, activities will cease and the 45SW Cultural Resource Manager (45 CES/CEVP) will be notified to initiate consultation with the SHPO.

No impacts to historical structures on CCAFS are expected from the proposed action. The nearest historic resource is Old Mission Control, approximately 3,000 ft (1100 m) southeast of DZ Ferreira. If a historic resource were to be inadvertently effected by the proposed action, the training activity would cease and the 45SW Cultural Resource Manager (45 CES/CEVP) will be notified to initiate consultation with the SHPO.

4.10.3 TSR

Land DZs at TSR have been established with the Park Ranger to avoid potential impacts to cultural resources in the reserve. No archeological sites are within a one-mile radius of any of the DZs. Therefore, no impacts to cultural resources are expected at TSR.

4.10.4 APAFR

All but two of the landing zones used by the 920th RQG have been sited in areas that have either been previously surveyed for cultural resources, are located in areas where surveys are not conducted due to human safety (impact areas, etc.), or are in areas of high disturbance such as spoil piles along the river or airfield. The drop zones are also located in high disturbance areas or within previously surveyed areas.

Since the 920th RQG submits AF Form 813's for training exercises at APAFR, if any training were to occur in an area suspected or known to contain cultural resources, guidance and avoidance measures would be given to the 920th RQG at that time. Therefore, training activities at APAFR would not significantly effect cultural resources at APAFR and require no mitigation measures.

4.10.5 The Atlantic Ocean

The activities of the 920th RQG are not expected to reach depths beyond 10 feet (3.07 m). If shipwrecks exist in the training areas, they would not be impacted by these operations and are excluded from further consideration.

4.11 Cumulative Impacts

In accordance with the implementing regulations for the NEPA, cumulative impacts must be addressed in an EA. A cumulative impact is the "...impact on the environment which results from the incremental impact of the action when added to other past, present, and reasonably foreseeable future actions..."

The Proposed Action, to continue performing water training operations in the Banana River and the Atlantic Ocean; utilizing LZs and DZs at PAFB, CCAFS, TSR, and APAFR; using air refueling tracks over the Atlantic Ocean and APAFR; and performing munitions testing at APAFR, would not represent a significant increase in any other activities occurring at any of these sites. Recreational and commercial boats are consistently using the Banana River and the Atlantic Ocean. Lightsticks are being used by various other groups (fisherman, cruise ships) and not being recovered. Numerous DoD groups are using APAFR for munitions training. Environmental effects identified in the analysis do not support a conclusion that there would be cumulative impacts at any of the 920th RQG training sites as a whole as a result of the Proposed Action.

4.12 Conflicts with Land Use Plans, Policies, and Controls

For all activities supporting the Proposed Action, no changes to overall Banana River, Atlantic Ocean, PAFB, CCAFS, TSR, APAFR land use would occur. The Proposed Action is fully compatible with the current and anticipated land use of these sites. Agreements have been made with land owners for sites that are not under DoD ownership. Therefore, the Proposed Action would have no impact on existing Banana River, Atlantic Ocean, PAFB, CCAFS, TSR, APAFR land use and present no conflicts with Federal, regional, State, local or Indian tribe land use plans, policies or controls.

4.13 Resource Requirements and Conservation Potential

Although no energy requirements are expected, any anticipated requirements can be accommodated within the energy supply of the region. Energy requirements would be subject to any established energy conservation practices.

No significant use of natural or depletable resources is required by the proposed action. The use of natural or depletable natural resources would occur in negligible quantities. No biological resources are expected to require removal or disturbance.

4.14 Irreversible or Irretrievable Commitment of Resources

The amount of materials and energy required for the proposed action is relatively small compared to on-going commercial fishing operations (S. P. Epperly, NMFS, pers. comm.) and would not result in changes to land use or cause permanent loss of habitat for biological species.

4.15 Adverse Impacts That Cannot be Avoided

The Proposed Action is not expected to result in any adverse environmental impacts that cannot be avoided through mitigation. Standard operating procedure for pilots to sweep an area before exercise commencement will ensure that the target area is clear of fisherman or any other persons as well as protected species. Recovery of deployed expendables will also serve to mitigate potential impacts to marine animals.

4.16 Federal Actions to Address Environmental Justice

Executive Order 12898 directs federal agencies to identify and address disproportionately high and adverse human health or environmental effects of their programs, policies and activities on low-income populations and minority populations in the United States. Given the physical parameters of the proposed action, analysis indicates little or no potential for substantial environmental effects on any human populations outside of the 920th RQG training areas.

4.17 Requirements for an Environmental Impact Statement

The potential impacts arising from the proposed training activities of the 920th RQG were evaluated specifically in the context of the criteria for actions requiring an EIS described in 32 CFR Part 989, *Environmental Impact Analysis Process*. Specifically, the proposed project activities were evaluated for their potential to:

- Significantly affect environmental quality or public health and safety.
- Significantly affect historic or archaeological resources, public parks and recreation areas, wildlife refuges or wilderness areas, wild and scenic rivers, or aquifers.
- Adversely affect properties listed or meeting the criteria for listing on the National Register of Historic Places or the National Registry of Natural Landmarks.
- Significantly affect prime and unique farmlands, wetlands, ecologically or culturally important areas, or other areas of unique or critical environmental concern.
- Result in significant and uncertain environmental effects or unique or unknown environmental risks.
- Significantly affect a species or habitat listed or proposed for listing on the Federal list of endangered or threatened species.
- Establish a precedent for future actions.
- Adversely interact with other actions resulting in cumulative environmental effects.
- Involve the use, transportation, storage and disposal of hazardous or toxic materials that may have significant environmental impact.

The evaluation indicated that the Proposed Action, as described in this EA, did not meet any of these criteria; therefore, an EIS is not required.

5.0 CONCLUSIONS AND MITIGATION REQUIREMENTS

The Environmental Assessments that were referenced at the beginning of this document (*The Final Environmental Assessment for Search and Rescue Training, HH-60 and HC-130 Rescue Squadrons, Moody AFB, Georgia, 1999* and *The Final Environmental Assessment for the Conversion of the 8-Inch Howitzer Weapon System to the Multiple Launch Rocket System in the Florida Army National Guard 3rd Battalion, 116th Field Artillery, 1997*) and were used as tiering documents in the preparation of this EA were prepared in accordance with the requirements of NEPA. These actions were similar, and in some cases, identical to those described in the current EA and were determined to have no significant impact on the quality of the human or natural environment or generate significant controversy in respect to the level of impacts. Both documents resulted in issuance of Finding of No Significant Impacts (FONSIs).

No significant impacts to any of the environmental components considered in this EA are anticipated. Mitigation measures have been identified for biological resources per direction of the USFWS and NMFS.

Mitigation measures for biological resources include use of the standard operating procedure for pilots to require sweeps of the area via helicopter or with the associated recovery boat prior to commencement of operations. The primary goal of the sweep is to ensure that the target area is clear of fishermen or any other persons, but also incorporates a visual inspection for protected species. If a protected species is seen in the drop zone, operations do not commence until the animal(s) have moved outside of these ranges. Observant boat operators running at recommended speeds within each zone should reduce risks of boat strikes to protected species.

Recovery of deployed items such as lightsticks and other training items at the end of the exercise in most of the DZs will further mitigate any impacts to biological resources.

The 920th RQG will continue to provide AF Form 813's to OLA/CEVN for training exercises at APAFR. Prior coordination will also be performed with TSR personnel. Therefore, potential effects to environmental resource topics, such as protected species and cultural resources in these locations, will continue to be avoided.

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8.0 Acronyms and Terms

Acronyms

ACC	Air Combat Command	EIAP	Environmental Impact Analysis Process
AFI	Air Force Instruction	EIS	Environmental Impact Statement
APAFR	Avon Park Air Force Range	EO	Executive Order
AR	Aircraft Refueling	EPA	Environmental Protection Agency
AWL	Above Water Level	ESA	Endangered Species Act
BAM	Bird Avoidance Model	FAA	Federal Aviation Administration
BASH	Bird Aircraft Strike Hazard	FAC	Florida Administrative Code
BLS	Below Land Surface	FDEP	Florida Department of Environmental Protection
BOC	Base Operations Contract	FMO	Fishery Management Officials
BRL	Banana River Lagoon	FMRI	Florida Marine Research Institute
CCAFS	Cape Canaveral Air Force Station	FNAI	Florida Natural Areas Inventory
CEQ	Council on Environmental Quality	ft	Feet
CFR	Code of Federal Regulations	FWCC	Florida Fish and Wildlife Conservation Commission
cm	centimeter	FONSI	Finding of No Significant Impact
CZMA	Coastal Zone Management Act	45SW	45 th Space Wing of the Air Force
db	Decibels	FWS	U.S. Fish and Wildlife Service
DBA	A weighted decibels	HABS	Historic American Buildings Survey
DNL	Day-Night Average Sound Level	HAPCs	Habitat Areas of Particular Concern
DO	Dissolved Oxygen	HC-130	Fixed Wing Aircraft
DoD	Department of Defense	HH-60	Helicopter
DUC	Deployed Unit Command	INRMP	Integrated Natural Resource Management Program
DZ	Drop Zone	IRL	Indian River Lagoon
EA	Environmental Assessment	JBOSC	Joint Base Operations Support Contract
EFH	Essential Fish Habitat	km	Kilometer

Acronyms (continued)

KSC	Kennedy Space Center	ROI	Region of Influences
LZ	Landing Zone	RQG	Rescue Group
m	Meter	RQS	Rescue Squadron
ML	Mosquito Lagoon	SATB	Simulated Air Training Bundle
MOA	Military Operations Area	SAV	Submerged Aquatic Vegetation
msl	Mean Sea Level	SEL	Sound Exposure Level
NAAQS	National Ambient Air Quality Standards	SHPO	State Historic Preservation Office
NASA	National Aeronautics and Space Administration	SMZ	Special Management Zone
NEPA	National Environmental Policy Act	SR	State Road
NHL	National Historic Landmark	SULMA	Special Use Land Management Areas
NHPA	National Historic Preservation Act	TN	Total Nitrogen
NMFS	National Marine Fisheries Service	TP	Total Phosphorus
NOAA	National Oceanographic and Atmospheric Administration	TSR	Tosohatchee State Reserve
NRHP	National Register of Historic Places	TSS	Total Suspended Solids
NWOPS	Night Water Operations	USAF	United States Air Force
OLA/CEVN	Environmental Group at APAFR	USFS	United States Forest Service
PAFB	Patrick Air Force Base	VFR	Visual Flight Rules
PSD	Prevention of Significant Deterioration	WOPS	Water Operations
RAMZ	Rigged Alternate Method Zodiac	WTA	Water Training Area
		yds	Yards

Terms

Acoustic	Having to do with hearing or sound as it is heard
Advection	The transference of heat by horizontal currents of air
Aquatic	Relating to water
Benthic	Bottom dwelling organisms
Bidirectional	Moving or functioning from two, usually opposite, directions
Biogenic	Produced by, or essential to, living cells
Cantonment	Quarters assigned for troops
Cetaceans	Aquatic water mammals lacking external hind limbs, including whales, dolphins, and porpoises
Chaff	Dusty material dispensed by aircraft to mask radar signature
Drop Zone	Area where items are deployed from aircraft, either HH-60 helicopters or C130 airplanes
Ephemeral	Lasting only one day or short-lived
Estuary	The lower portion or wide mouth of a river, where the salty tide meets the freshwater currents
Expendables	Supplies expected to be used up or destroyed in service
Euryhaline	Able to exist in waters with wide variations in their salt content
Fauna	The animals of a specified region
Fishery	A place where fish are caught
Flora	The plants of a specified region
Gunnery	Using heavy guns and projectiles
Herbaceous	Plants distinguished from woody plants
Landing Zone	Training areas where aircraft, either HH-60 helicopters or C-130 airplanes land.
LATN	Large area of uncontrolled airspace used by the military
Luminescent	Giving off light
Megafauna	Large animals
Munitions	Weapons and ordnance

Terms (continued)

NEPA	National Environmental Policy Act. This law, passed in 1969, requires all Federal agencies to disclose the environmental effects of their actions and established the Council on Environmental Quality to implement the law and monitor compliance with the law.
Neotropical	Biographic region that includes South America, the West Indies, Central America, and tropical Mexico
Pararescuers	Parachutists who rescue persons from dangerous situations
Promulgated	To put something into effect by publishing it.
Region of Influences	Expected geographic scope of potential impacts
Salinities	Salt content
Sargassum	Contains free-floating species of brown algae (Phalophyta) that have no requirements for attachment to the sea bottom
Sortie	A sortie consists of a single military aircraft flight from takeoff to landing.
Tenant	An occupant or dweller in a specified place
Terrestrial	Living on land rather than in the water or air
Terrigenous	Sea-bottom sediment derived from erosion of the land
Water Training Area	Aquatic area used to perform water training operations
Water Operations	Training operations performed in the water

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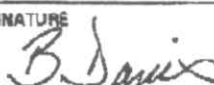

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Appendix 1

AF Form 813 for 920th RQG

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REQUEST FOR ENVIRONMENTAL IMPACT ANALYSIS		Report Control Symbol RCS: 01-0904
INSTRUCTIONS: Section I to be completed by Proponent; Sections II and III to be completed by Environmental Planning Function. Continue on separate sheets as necessary. Reference appropriate item number(s).		
SECTION I - PROPONENT INFORMATION		
1. TO (Environmental Planning Function) 45 CES/CEV	2. FROM (Proponent organization and functional address symbol) 920 RQG/CC	2a. TELEPHONE NO. 494-2218
3. TITLE OF PROPOSED ACTION Conduct Training Operations to Maintain Combat Ready (CMR) Status		
4. PURPOSE AND NEED FOR ACTION (Identify decision to be made and need date) Conduct training operations to maintain combat ready status as directed by the Joint Chiefs of Staff per Regulations AFI 11-2H-60V3, and AFTTP 3-3, Volume 24		
5. DESCRIPTION OF PROPOSED ACTION AND ALTERNATIVES (DOPAA) (Provide sufficient details for evaluation of the total action.) See attached documentation		
6. PROPONENT APPROVAL (Name and Grade) Bruce E. Davis, Colonel, USAFR	6a. SIGNATURE 	6b. DATE 28 Aug 01
SECTION II - PRELIMINARY ENVIRONMENTAL SURVEY. (Check appropriate box and describe potential environmental effects including cumulative effects.) (+ = positive effect; 0 = no effect; - = adverse effect; U = unknown effect)		
7. AIR INSTALLATION COMPATIBLE USE ZONE/LAND USE (Noise, accident potential, encroachment, etc.)		+ 0 - U
8. AIR QUALITY (Emissions, attainment status, state implementation plan, etc.)		+ 0 - U
9. WATER RESOURCES (Quality, quantity, source, etc.)		+ 0 - U
10. SAFETY AND OCCUPATIONAL HEALTH (Asbestos/radiation/chemical exposure, explosives safety quantity-distance, bird/wildlife aircraft hazard, etc.)		+ 0 - U
11. HAZARDOUS MATERIALS/WASTE (Use/storage/generation, solid waste, etc.)		+ 0 - U
12. BIOLOGICAL RESOURCES (Wetlands/floodplains, threatened or endangered species, etc.)		+ 0 - U
13. CULTURAL RESOURCES (Native American burial sites, archeological, historical, etc.)		+ 0 - U
14. GEOLOGY AND SOILS (Topography, minerals, geothermal, Installation Restoration Program, seismicity, etc.)		+ 0 - U
15. SOCIOECONOMIC (Employment/population projections, school and local fiscal impacts, etc.)		+ 0 - U
16. OTHER (Potential impacts not addressed above.)		+ 0 - U
SECTION III - ENVIRONMENTAL ANALYSIS DETERMINATION		
17. <input type="checkbox"/> PROPOSED ACTION QUALIFIES FOR CATEGORICAL EXCLUSION (CATEX) # _____; OR <input checked="" type="checkbox"/> PROPOSED ACTION DOES NOT QUALIFY FOR A CATEX; FURTHER ENVIRONMENTAL ANALYSIS IS REQUIRED.		
18. REMARKS 9/7/01 - WSD If work is not designed or started within one year of this signature, this AF Form 813/project will need to be re-evaluated by 45 CES/CEV. See attachment, AF Form 813 Continuation Sheet		
19. ENVIRONMENTAL PLANNING FUNCTION CERTIFICATION (Name and Grade) E. ALEXANDER STOKES III, REM, GS-14 Chief, Environmental Flight	19a. SIGNATURE 	19b. DATE 25 Sep 01

AF FORM 813, AUG 93, CONTINUATION SHEET

01-0904

Patrick AFB is located in an area that is in attainment, therefore, an air conformity determination is not required.

Dispose of all wastes IAW federal, state, local, DoD regulations, and 45 SW Oplan 19-14.

Informal consultation with U.S. Fish and Wildlife Service has been conducted and the following requirements will be adhered to:

1. Endangered Species Act briefings will be provided to all participants. The briefing will familiarize everyone involved with training/re-certification on the manatee.
2. For daylight operations, DZ Judy will be surveyed from the air to determine the presence of Manatees. For nighttime operations, the survey will be conducted in daylight hours, just prior to dusk. All jumping operations will be initiated within one hour of the survey.
3. During the airborne jumping operations, retrieval vessels will operate in and around the perimeter of DZ Judy aware that manatees may be traversing the area. When a parachuter lands in DZ Judy, the retrieval vessel will go directly to the individual, make the retrieval, and exit the river. All river vessel operations will be conducted with care to avoid any adverse impacts upon manatees.
4. Observers trained in identifying manatees will be positioned in all watercraft involved in the training/re-certification. Slow speed, minimum-wake rules are in effect in shallow water and within 200 meters of the shoreline.
5. Training/re-certification operations will cease immediately if manatees enter within 100 meters of the training area.

The proposed action has the potential to affect threatened and endangered species; therefore, under the Endangered Species Act, Section 7 Consultation with the U.S. Fish and Wildlife Service, National Marine Fisheries Service, and Florida Wildlife Conservation Commission must be completed by the Air Force prior to initiation of the project.

The disposal of nicad, lithium and mercury batteries should be in accordance with all Federal, State and local laws and 45 SW Oplan 19-14.

These comments are provided for planning and evaluation purposes only. This does not constitute completion of EIAP (Environmental Impact Analysis Process), which will be required and must be completed.

Remarks on AF Form 813 deals with only current proposed actions as described and does not apply to additional work that may have to be accomplished. Any change in scope of the project will require the submission of a new AF Form 813.

wjpwii
9/7/01

Alternative One

The 301st RQS flies on average four Night Water Operations (NWOPS) patterns offshore on a weekly basis. Typically, this includes three Ready Aircrew Program (RAP) sorties and one upgrade sortie, or five chemlight lanes or approximately 115 chemlights in a week. Personnel utilized include 28 helicopter pilots and 30 flight engineers (FE)/gunners (AG).

Each crew member needs six sorties a year to maintain currency under the Ready Aircrew Program (RAP) and be considered combat mission ready. Two pilots and two back enders (FE/AG) fly per sortie. $30 \text{ (FE/AGs)} / 2 \times 6 = 90$ sorties minimum to meet RAP training requirements. We have an average of 12 aircrew members in NWOPS upgrades in a given year. NWOPS upgrades require 3 flights(sorties) to complete required training. $12 \times 3 = 36$ sorties minimum to meet upgrade training requirements, assuming only one aircrew member on any given upgrade sortie.

Due to reservist/aircrew availability and currencies more NWOPS sorties are required to meet all the training requirements. Typically, this is as much as 50% more sorties required to meet training obligations:

90 RAP training sorties $\times 1.5 = 135$ RAP training sorties.

36 upgrade training sorties $\times 1.5 = 54$ upgrade training sorties

Normally, the upgrade training sorties cannot be incorporated into the RAP training sorties. Total number of night vision goggle (NVG) sorties required annually equals 110 (rounded).

1 NVG sortie requirements: 1 chemlight lane for RAP training, 2 chemlight lanes for upgrade training @ 23 chemlights per lane.

Therefore, the final total of chemlights used per year is:

135 RAP training sorties $\times 23$ chemlights $\times 1$ chemlight lane = 3,105 chemlights

54 upgrade training sorties $\times 23$ chemlights $\times 2$ chemlight lanes = 2,484 chemlights

TOTAL chemlights required for NWOPS training = 5,589 chemlights per year

The offshore training locations may vary depending on the training mission on a particular night. At a minimum, two HH-60G helicopters must operate a minimum of 100 yards offshore. The training location usually used ranges from 4 – 20+ miles offshore. Normal 301st operations places the first helicopter on the 070 degree radial for four miles from Patrick and the second helicopter on the 120 degree radial for four miles. To complete a NWOPS training pattern each helicopter operates within a 2mile radius of an intended "hover point", simulating the rescue of a pilot floating at sea. Flight altitudes range from a 150' rectangular pattern down to a 10' hover over the ocean's surface.

Chemical light sticks (as noted above) are used during the NWOPS training patterns to mark the survivors' location and maintain hover references. The sticks are a 6" x 1" hollow plastic tube containing two nontoxic chemicals. Bending the plastic outer tube causes a glass inner vial to rupture, mixing the chemicals together creating a luminescent reaction.

Air Force instructions require that a helicopter deploy a minimum of 23 six inch chem light sticks per NWOPS pattern. Five chem light sticks are zip-tied together and thrown to mark the location of the survivor. An additional 18 chem light sticks are thrown to create a mini "floating runway" around the survivor. These lights are critical for safe stable hover references. The lights float on the water's surface, and the type of stick normally used stays illuminated for up to eight hours.

We have the option to use non-visible (infrared chem lights) or lights that stay illuminated ranging from five minutes to twelve hours. Because the mission usually lasts approximately two hours, the lights lasting eight hours are the most practical. Using the ones that only last five minutes would mean more lights used each time.

The 39th RQS routinely uses various Drop Zones (DZs) to conduct Combat Search and Rescue training in support of wartime tasking and peacetime mission, Shuttle Support. DZs are surveyed for use and have an AF Form 3823, Drop Zone Survey, on file for our use.

Land Drop Zones

DZ	Location	Type of Drops Permitted	Coordinates
Ferrar	Cape Skid Strip	Personnel/SATB	N28 13.37 W80 36.77
Bam Bam	Patrick AFB	Personnel/SATB	N28 13.37 W80 36.77
Hardluck	Avon Park	Personnel/SATB	N27 38.963 W81 20.304

As indicated above, these are land DZs and require a Drop Zone Controller to be on the ground to clear the DZ, clear the aircraft to drop, and recover everything that is dropped. SATB is a training bundle, a 10 lb bag of sand with a parachute. Ferrar is used nearly every night. When we can't access Ferrar, we use Bam Bam and Hardluck.

Water Drop Zones (All Equipment Recovered at Training's End)

DZ	Location	Type of Drops Permitted	Coordinates
Judy	Banana River	Personnel/SATB/RAMZ	N28 16 08.3 W80 38.08.2
Rick Smith	Ocean	Personnel/SATB/RAMZ	N28 15 00.0 W80 16 00.0

Bill Sutton Ocean Personnel/SATB/RAMZ N28 23 29.1 W80 23 30.3

These water DZs require a Drop Zone party to be in a recovery boat to clear the DZ, clear the aircraft to drop, and recover everything that is dropped. RAMZ is a packaged zodiac boat. Personnel drop under parachutes, follow the package and inflate the boat once everyone impacts the water. Judy is used approximately once a week. Smith and Sutton are seldom used. Other units, including rescue units from Moody AFB and Kirtland AFB, use Judy.

Crown Ocean Personnel/RAMZ/Pyro N27 57.50 W79

Crown is located approximately 40 miles off Patrick. There is no Drop Zone party because it is too far out at sea for the boats. The pyro dropped is not recovered. Crown is used on average once a month. Below is the total amount of munitions expended in FY 2001 as of 25 Jul 01 at Crown DZ:

LUU-4 = 10 (illumination flare)
MK-6 = 79 (long smoke)
MK-25 = 304 (short smoke)
MK-59 = 157 (sea dye)

No Action Alternative

All of the above training is necessary to not only maintain combat readiness, but also to maintain proficiency for the Group's peacetime, ongoing mission of supporting NASA's Astronaut Search and Rescue Mission. Without this critical training, we would not have the ability to rescue astronauts from the ocean during night launches or landings.

Appendix 2

Section 7 Consultation with USFWS (June 2001), National Marine Fisheries Service (June 2003), and Consultation with the National Marine Fisheries' Habitat Conservation Division (May 2003)

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DEPARTMENT OF THE AIR FORCE
45TH SPACE WING (AFSPC)

JUN 4 2001

MEMORANDUM FOR US FISH AND WILDLIFE SERVICE
ATTN: MR DON PALMER
6620 SOUTHPOINT DRIVE SOUTH, SUITE 310
JACKSONVILLE, FLORIDA 32216-0958

FROM: 45 CES/CEVP
1224 Jupiter Street, MS 9125
Patrick AFB FL 32925-3343

SUBJECT: Initiation of Section 7 Consultation for 920th Training Operations in Judy
Drop Zone (DZ)

1. The 45th Space Wing supports 920th Rescue Group operations out of Patrick Air Force Base (PAFB), Florida. The 920th provides search and rescue for downed aircraft and Space Shuttle launch support.
2. Judy DZ is used extensively for 920th training operations. The DZ consists of a circular area (1000 yd. radius) of the Banana River northwest of PAFB. The coordinates of the center of the DZ are 28°16'08.3"N, 80°38'08.2"W. Consultation is required for the training operations in Judy DZ because of the presence of West Indian Manatee, an endangered species.
3. A complete description of the 920th training operations in Judy DZ is attached. My staff and I, as well as members of the 920th, are available to assist you as necessary. My action officer for this effort is Mr. Randall Rowland, 45 CES/CEVP, (321) 494-5286 or e-mail randall.rowland@patrick.af.mil.

A handwritten signature in black ink, appearing to read "A. Clay Gordin", is located below the list of points.

A. CLAY GORDIN, GM-13
Chief, Environmental Planning

Attachments:

1. 920th Operations in Judy DZ
2. Location Map

920th Operations in Judy Drop Zone (Judy DZ)

PURPOSE AND NEED FOR ACTION:

The 920th Rescue Group is responsible for providing search and rescue of downed aircrew members during combat and peacetime contingencies. We also provide the primary rescue force for all Space Shuttle launch and landing operations. Judy DZ is essential to our continued ability to meet the demands of these vital national missions. Judy DZ is used for helicopter day and night water operations involving insertion and extraction of pararescuemen by means of fast rope or rope ladder, as well as by parachute. The drop zone is also utilized by HC-130 aircraft to deploy pararescuemen and equipment by parachute, both day and night. Judy DZ provides a protected area, which is safe and relatively benign during most of the year. We have open ocean drop zones available, but the logistical requirements and unpredictable nature of the ocean limit our training and greatly increase the risk associated with this highly demanding training. To meet the training and currency requirements of eight HC-130 crews, ten HH-60 crews, and 45 pararescuemen, Judy Drop Zone has been utilized twice weekly on average for the last six years by this unit.

Without the use of Judy Drop Zone, it will be difficult, if not impossible, to maintain our combat mission readiness and the ability to support Space Shuttle rescue operations and will greatly degrade the effectiveness of our unit to support civil search and rescue as well.

DESCRIPTION OF PROPOSED ACTION:

Request approval to continue 920th Rescue Group water operations training in the Banana River in the confines of Judy DZ. The scope of training/frequency of operations include the following:

- a. Frequency of use: Twice weekly on average, three times maximum.
- b. Jumper personnel Involved: 3-9 personnel per use.
- c. Air-droppable Watercraft (RAMZ)- approximately 15-20 drops per year. 25 maximum.
- d. Surface support watercraft: 1-2 per use. One Zodiac 16', 35 Hp outboard. One-Boston Whaler, 25', 2- 200Hp outboards.
- e. Aircraft Utilized: HC-130 and HH-60 aircraft from the 920th Rescue Group only.
- f. Altitudes Deployed (dropped) from: 1500' and 3500'

RELEVANT FACTS

1. Area being accessed is not a posted manatee protection zone under the Endangered Species Act or Marine Mammal Protection Act. Although manatees have been spotted near Judy DZ, these animals are moving from one area to another and only transiting the area.
2. In accordance with the Endangered Species Act, we have examined our "basis for the best scientific and commercial data available." The entire Judy Water DZ is a poor environment for the manatee due to the sandy bottom and absence of food sources. Visual inspection has confirmed these findings.

920th Operations in Judy Drop Zone (Judy DZ)

PROPOSED PROCEDURES

1. Endangered Species Act Briefings and Manatee awareness training will be conducted for all aircrew and pararescue personnel. Manatee awareness will be made a mandatory part of all aircrew briefings for any mission utilizing Judy DZ.
2. During aerial operations, Judy DZ will be surveyed for the presence of manatees by air, as well as surface support vessels. Operations will not commence or will be halted until the drop zone is clear of manatees. All surface vessels will operate at minimum speed while within the confines of Judy DZ.
3. During jumpmaster briefings, all jumpers will be briefed, that in the unlikely event they see a manatee, to maneuver to land as far away from the manatee as possible and to notify the boat party to suspend operations until the manatee is clear.
4. In the unlikely event an incidental contact occurs, the 920th Rescue Group Commander and the 45th Space Wing Bioenvironmental Office will be notified immediately.

TYPICAL EVENT SEQUENCE

Personnel Jumps- Day or Night

Support boats depart from Patrick AFB boathouse and transit 1.6 miles to Judy DZ. Aircraft (Helos and, or HC-130s) arrive over Judy DZ approximately fifteen minutes later. Radio contact is established between support boats and aircraft (mandatory). Aircraft and boats survey DZ for presence of manatees. Once completed, the aircraft drops a paper streamer at 1500' or 3000' (depending on type of parachute to be used) to determine jumper's release point, and then flies a visual track from streamer location to target to release point. The jumpmaster then determines the exit point and executes the jump. Following the jump, personnel are recovered by support boats (Zodiac and, or Boston Whaler), chutes and any other equipment are picked up, and support boats return to Patrick. Normally the entire operation is completed within about 90 minutes.

RAMZ (air droppable Zodiac Inflatable)- Day or Night

Support boats depart from Patrick AFB boathouse and transit 1.6 miles to Judy DZ. Aircraft (Helos and, or HC-130s) arrive over Judy DZ approximately fifteen minutes later. Radio contact is established between support boats and aircraft (mandatory). Aircraft and boats survey DZ for presence of manatees. The RAMZ drop is similar to the personnel jump in support requirements and procedures. The RAMZ package is deployed from 3500' and the equipment chutes are equipped with an automatic release, which separates the RAMZ from the parachutes upon water contact. Three to six jumpers exit the aircraft 6 seconds after the RAMZ is dropped and they steer to land downwind of the RAMZ. They swim to the package, inflate the raft and start the

920th Operations in Judy Drop Zone (Judy DZ)

engine. They then recover their chutes, while the Boston Whaler recovers the RAMZ packing materials and chutes. Once all equipment is recovered, they return to Patrick. This operation normally takes about two hours to complete due to the additional logistical support time required.

Helicopter Water Operations- Day or Night

Support boats depart from Patrick AFB boathouse and transit 1.6 miles to Judy DZ. Helicopters arrive over Judy DZ approximately fifteen minutes later. Radio contact is established between support boats and aircraft (mandatory). Aircraft and boats survey DZ for presence of manatees. Helicopter waters operations involve only the helicopter, support boat and pararescue personnel. The helicopter crew utilizes night vision goggles (NVGs) during night operations. The helicopter hovers about 10 feet above the water with 5-10 knots forward speed while 3-6 pararescuemen (PJs) jump from the helicopter. This procedure for insertion is called "a low and slow." The helicopter moves away from the PJs to simulate departing the area. The helicopter returns to the PJs and hovers over them while a rope ladder is lowered. The PJs climb the rope ladder, enter the helicopter and the helicopter departs. The support boat's sole purpose is to provide a recovery means for the PJs if the helicopter can't make the pickup, or in the event of emergency, should the PJs need assistance.



United States Department of the Interior

FISH AND WILDLIFE SERVICE

6620 Southpoint Drive South
Suite 310
Jacksonville, Florida 32216-0958

IN REPLY REFER TO:
FWS/R4/ES-JAFL

June 25, 2001

Mr. A. Clay Gordin
Chief, Environmental Planning
45 CES/CEVP
1224 Jupiter Street, MS-9125
Patrick Air Force Base, Florida 32925-3343

FWS Log No: 01-767
Project: Drop Zone Judy

Dear Mr. Gordin:

This responds to your letter of June 4, 2001, pursuant to section 7 of the Endangered Species Act of 1973, as amended (Act)(16 U.S.C. 1531 *et seq.*).

The 45th Space Wing supports Rescue Group operations out of Patrick Air Force Base (PAFB). The 920th provides search and rescue for down aircraft and Space Shuttle launch support. Drop Zone (DZ) Judy is used extensively for 920th training operations. The DZ is located off PAFB in the Banana River. The DZ would be used about twice a week, with both day and night time exercises.

The Air Force evaluated the impact of this operation on the manatee, and determined a not likely to adversely affect provided certain precautions were taken. The Air Force stated that all surface vessels would operate at minimum speed while within the confines of the DZ. In addition, there would be manatee awareness training for all aircrew and pararescue personnel.


On March 29, 2001, the Service consulted on the same operation, based on a limited time period. We stated that we did not believe the operation would adversely affect the manatee provided all vessels would operate at slow speed, minimum wake, at all times during the operations (with the exception of emergency situations), including travel to and from PAFB.

On June 14, 2001, we notified the Air Force, via e-mail, that we believed any operation involving DZ Judy should comply with the same speed zone restrictions as outlined in our March 29 letter. On June 20, 2001, the Air Force notified our office, via e-mail, that they would comply with the speed zone restrictions as outlined in the Service's March 29 letter. As such, we concur with the Air Force's determination of not likely to adversely affect with reference to the manatee.

Although this does not represent a biological opinion as described in section 7 of the Act, it does fulfill the requirements of the Act and no further action is required. If modifications are made in the project or additional information becomes available on listed species, reinitiation of consultation may be required.

Sincerely,

A handwritten signature in black ink that reads "Don Palmer". The signature is written in a cursive style with a large, stylized "D" and "P".

 Peter M. Benjamin
Assistant Field Supervisor

s:01-767/dtp/06.25.01/cts



**UNITED STATES DEPARTMENT OF COMMERCE
National Oceanic and Atmospheric Administration**

NATIONAL MARINE FISHERIES SERVICE

Southeast Regional Office
9721 Executive Center Drive North
St. Petersburg, FL 33702
(727) 570-5312; Fax 570-5517
<http://caldera.sero.nmfs.gov>

JUN 18 2003

F/SER3:DK

Mr. A. Clay Gordin
Chief, Environmental Planning
Department of the Air Force
45 CES/CEVP
1224 Jupiter Street, MS 9125
Patrick AFB, FL 32925-3343

Dear Mr. Gordin:

This correspondence is in reply to the April 18, 2003, memorandum and accompanying information from the U.S. Air Force, Patrick Air Force Base, Florida. The Air Force has requested section 7 consultation from the National Marine Fisheries Service (NOAA Fisheries), pursuant to the Endangered Species Act of 1973 (ESA). The project is to allow the 920th Rescue Group (RQG) to continue to use historical land drop zones (DZs), water training areas (WTAs), helicopter air refueling tracks, and a live fire munitions training area. The NOAA Fisheries' consultation number for this project is I/SER/2003/00458; please refer to this number in future correspondence on this project.

The Air Force is proposing to continue training activities in established areas at Patrick Air Force Base (PAFB), Cape Canaveral Air Force Station (CCAFS), Avon Park Air Force Range (APAFR), Tosohatchee State Reserve (TSR), the Banana River, and the Atlantic Ocean. Training is deemed necessary to maintain combat readiness and to maintain proficiency for the RQG's peacetime, on-going mission to support the National Aeronautics and Space Administration's Astronaut Search and Rescue Mission. Only the water-based training activities off PAFB, CCAFS, the Banana River, and the Atlantic Ocean fall under NOAA Fisheries' ESA jurisdiction. Water operations would include air refueling tracks over the Atlantic Ocean and helicopter rescue training over the water. As part of these activities, low flying helicopters, Zodiacs, pararescuer drops into the water, light sticks, sea smoke, and dye packets will be utilized. No munitions training occurs in these water-based sites.

ESA-listed species under the purview of NOAA Fisheries which potentially occur in the project area include: the green (*Chelonia mydas*), loggerhead (*Caretta caretta*), Kemp's ridley (*Lepidochelys kempii*), leatherback (*Dermochelys coriacea*), and hawksbill (*Eretmochelys imbricata*) sea turtles; and species of whales including the northern right (*Eubalaena glacialis*), finback (*Balaenoptera physalus*), humpback (*Megaptera novaeangliae*), sei (*Balaenoptera borealis*), blue (*Balaenoptera musculus*) and sperm (*Physeter catodon*). No critical habitat has been designated or proposed for listed species within the project area.

Various precautions are being taken to prevent or reduce environmental impacts. Prior to all exercises a pre-exercise sweep will be conducted via helicopter or recovery boat to determine if sea turtles, marine



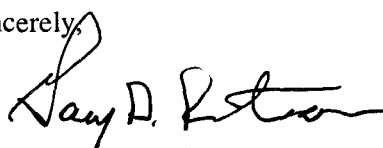
mammals, or boaters are present. If present, exercises will not commence until the area is clear. When light sticks are used, a recovery boat will retrieve them to the greatest extent practicable. The light sticks float and have a durable, flexible plastic covering. The chemicals within the light sticks are relatively inert and of very small quantities such that in the unlikely event of exposure, marine fauna would experience only short-term, localized irritation. The sea smoke and dye used in the exercises are inert and not expected to impact marine fauna. NOAA Fisheries, therefore, concurs with the Air Force's determination that the continuing activities of the 920th RQG may affect, but are not likely to adversely affect, any listed species under our purview.

This letter concludes the Air Force's consultation responsibilities under section 7 of the ESA for the proposed actions for federally-listed species, and their critical habitat, under NOAA Fisheries' purview. A new consultation should be initiated if there is a take, new information reveals impacts of the proposed actions that may affect listed species or their critical habitat, a new species is listed, the identified action is subsequently modified, or critical habitat is designated that may be affected by the proposed activity.

The action agency is also reminded that, in addition to its protected species/critical habitat consultation requirements with NOAA Fisheries' Protected Resources Division pursuant to section 7 of the ESA, prior to proceeding with the proposed action the action agency must also consult with NOAA Fisheries' Habitat Conservation Division (HCD) pursuant to the Magnuson-Stevens Fishery Conservation and Management Act's requirements for essential fish habitat (EFH) consultation (16 U.S.C. 1855 (b)(2) and 50 CFR 600.905-.930, subpart K). The action agency should also ensure that the applicant understands the ESA and EFH processes; that ESA and EFH consultations are separate, distinct, and guided by different statutes, goals, and time lines for responding to the action agency; and that the action agency will (and the applicant may) receive separate consultation correspondence on NOAA Fisheries letterhead from HCD regarding their concerns and/or finalizing EFH consultation. Consultation is not complete until EFH and ESA concerns have been addressed.

If you have any questions about EFH consultation for this project, please contact Mr. George Getsinger, HCD, at (904) 232-2580 x121. If you have any questions about this ESA consultation, please contact Dennis Klemm, fishery biologist, at the number above or by e-mail at Dennis.Klemm@noaa.gov.

Sincerely,


for, Roy E. Crabtree, Ph.D.
Regional Administrator

cc: F/PR3
F/SER45-G. Getsinger

File: 1514-22.S.USAF
O:\section 7\informal\920th Rescue Group Training.wpd



**UNITED STATES DEPARTMENT OF COMMERCE
National Oceanic and Atmospheric Administration**

NATIONAL MARINE FISHERIES SERVICE

Southeast Regional Office

9721 Executive Center Drive North

St. Petersburg, Florida 33702-2432

May 27, 2003

Ms. Angy Chambers
45 CES/CEV
1224 Jupiter St. MS 9125
Patrick AFB, Florida 32925-3343

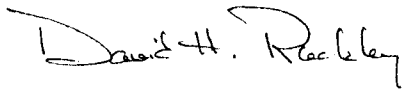
Dear Ms. Chambers:

The National Marine Fisheries Service (NOAA Fisheries) has reviewed the Environmental Assessment (EA) and Finding of No Significant Impact (FONSI) for the 920th Rescue Group continued training activities at Patrick Air Force Base, Florida. We anticipate that adverse effects on fishery resources under our purview will be minimal. Consequently, we concur with the FONSI.

These comments do not satisfy your consultation responsibilities under Section 7 of the Endangered Species Act of 1973, as amended. If any activity(ies) "may affect" listed species and habitats under NOAA Fisheries purview, consultation should be initiated with our Protected Species Branch at the letterhead address.

Please direct related questions or comments to the attention of Mr. George Getsinger, at our Jacksonville Office. He may be reached at 6620 Southpoint Drive South, Suite 310, Jacksonville, Florida 32216-0958, or at (904) 232-2580 ext. 121.

Sincerely,


for Frederick C. Sutter III
Deputy Regional Administrator



Appendix 3

Protected Flora at Avon Park Air Force Range, Florida

Appendix – APAFR Protected Flora

Common Name	Scientific Name	Global Rank	State Rank	Federal Status	State Status
Aspidium fern (unnamed)	<i>Thelypteris interrupta</i>				LT
Aspidium fern (unnamed)	<i>Thelypteris kunthii</i>				LT
Big yellow milkwort	<i>Polygala rugelii</i>				LT
Blue butterwort	<i>Pinguicula caerulea</i>				LT
Brown-haired snoutbean	<i>Phynchosia cinerea</i>	G3	S3	3C	
Butterfly orchid	<i>Encyclia tampensis</i>				LT
Cassine	<i>Ilex cassine</i>				CE
Cinnamon fern	<i>Osmunda cinnamomea</i>				CE
Climbing dayflower	<i>Commelina gigas</i>				LT
Common wild pine	<i>Tillandsia fasciculata</i>				CE
Curtiss' milkweed	<i>Asclepias curtisii</i>	G3	S3		LE
Cutthroat grass	<i>Panicum abscissum</i>	G2	S2	C2	LT
Decurrent beak-rush	<i>Thynchospora decurrens</i>	G3G4	S2		
Downy shield fern	<i>Thelypteris dentata</i>				LT
Dwarf palmetto	<i>Sabal minor</i>				LT
Everglades water willow	<i>Justicia angusta</i>	G2	S2		
Florida threeawn	<i>Aristida rhizomorpha</i>	G2	S2		
Foxtail club moss	<i>Lycopodium alopecuroides</i>				LT
Garberia	<i>Garberia heterophylla</i>				LT
Giant wild pine	<i>Tillandsia utriculata</i>				CE
Golden polypody	<i>Phlebodium aureum</i>				LT
Grass pink (unnamed)	<i>Calopogon tuberosus</i>				LT
Hairy jointweed	<i>Polygonella basiramia</i>	G3	S3	LE	LE
Hand fern	<i>Ophioglossum palmatum</i>	G2	S2	3C	LE
Hartwrightia	<i>Hartwrightia floridana</i>	G2	S2	C2	LT
Hooded pitcherplant	<i>Sarracenia minor</i>				LT
Large white fringed orchid	<i>Platanthera blephariglottis</i>				LT

Netted chain fern	<i>Woodwardia areolata</i>				
Nodding club moss	<i>Lycopodium cernuum</i>				LT
Nodding pinweed	<i>Lechea cernua</i>	G3	S3	C2	LE
Orchid (unnamed)	<i>Harrisella filiformis</i>				LT
Piedmont jointgrass	<i>Coelorachis tuberculosa</i>	G3	S3	C2	
Pigeon-wing butterfly-pea	<i>Clitoria fragans</i>	G3	S3	PT	LT
A queen's delight	<i>Stillingia sylvatica</i> ssp. <i>Tenuis</i>	G4G5T2	S2	C2	
Rose pogonia	<i>Pogonia ophioglossoides</i>				LT
Royal fern	<i>Osmunda regalis</i>				CE
Sand spikemoss	<i>Selaginella arenicola</i>				LT
Scrub bay	<i>Persea borbonia</i> var. <i>humilis</i>	G4	S3	3C	
Scrub bluestem	<i>Schizachyrium niveum</i>	G1	S1	C1	
Scrub palmetto	<i>Sabal etonia</i>				LT
Shoestring fern	<i>Vittaria lineata</i>				LT
Slender club moss	<i>Lycopodium carolinianum</i>				LT
Small butterwort	<i>Pinguicula pumila</i>				LT
Snowy orchid	<i>Platanthera nivea</i>				LT
Spring ladies' tresses	<i>Spiranthes vernalis</i>				LT
Southern red lily	<i>Lilium catesbaei</i>	G4	S3		LT
Strap fern (unnamed)	<i>Campyloneurum phyllitidis</i>				LT
Water-horn fern	<i>Ceratopteris thalictroides</i>				LT
Water-spider orchid	<i>Habenaria repens</i>				LT
Wedge-leaved button-snakeroot	<i>Eryngium cuneifolium</i>	G1	S1	LE	LE
Wild coco	<i>Eulophia alta</i>				LT
Wild pine	<i>Tillandsia balbisiana</i>				LT
Wild pine	<i>Tillandsia setacea</i>				LT
Yellow butterwort	<i>Pinguicula lutea</i>				LT
Yellow fringed orchid	<i>Platanthera ciliaris</i>				LT
Yellow fringeless orchid	<i>Platanthera integra</i>	G3G4	S3S4	3C	(LT)

FNAI ELEMENT RANK EXPLANATIONS

State Element Ranks: Definition parallels global element rank; substitute "S" for "G" in above global ranks and "in state" for "globally" in above global rank definitions.

FEDERAL STATUS EXPLANATIONS

LE Listed as endangered species in the list of endangered and threatened wildlife and plants under the provisions of the Endangered Species Act.

LT Listed as threatened species.

PT Proposed for listing as Threatened Species.

C1 Candidate species for addition to the list of Endangered and Threatened Wildlife and Plants, Category 1.

C2 Candidate Species, Category 2.

3C Category 3C. Taxa that have proven to be more abundant or widespread than was previously believed and/or those that are not subject to any identifiable threat.

LTSA Threatened due to similarity of appearance.

STATE STATUS EXPLANATIONS

LE Listed as Endangered Plants in the Preservation of Native Flora of Florida Act

LT Listed as Threatened Plants in the Preservation of Native Flora of Florida Act.

CE Listed as a Commercially Exploited Plant in the Preservation of Native Flora of Florida Act.

(LT) Listed as threatened as a member of a larger group but not specifically listed by species name.

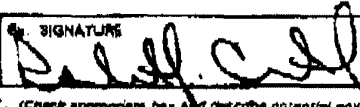
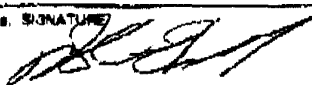
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Appendix 4

Previous AF Form 813's

Submitted to APAFR by the 920th RQG

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REQUEST FOR ENVIRONMENTAL IMPACT ANALYSIS		Report Control System ACS
INSTRUCTIONS: Section I to be completed by Proponent, Sections II and III to be completed by Environmental Planning Function. Complete all sections unless otherwise indicated. Reference appropriate form numbers.		
SECTION I - PROPONENT INFORMATION		
1. TO (Environmental Planning Function) 347th RQW, OLA Det 1 Avon Park, AFB FL 33825-5700	2. FROM (Proponent organization and functional address, section) 920 MSP/SF Patrick AFB, FL 32925	3. DATE 8/2/02
3. TITLE OF PROPOSED ACTION Security Forces Ground Combat Skills Training		
4. PURPOSE AND NEED FOR ACTION (Identify decision to be made and need stated) 16 Security Forces Personnel will be conducting Combat Patrolling, Night Operations, Constructing Individual Fighting Positions, and Field Survival. We will also utilize 2 Military Vehicles and 2 All Terrain Vehicles (ATV). We would like to use		
5. DESCRIPTION OF PROPOSED ACTION AND ALTERNATIVES (Optional) (Provide sufficient details for evaluation of the total action) N/A		
6. PROponent Approval (Name and Grade) Coward, Robert J. Jr., TSgt, USAFR Chief, Security Forces Operations	7. SIGNATURE 	8. DATE 20020113
SECTION II - PRELIMINARY ENVIRONMENTAL SURVEY. (Check appropriate box and describe potential environmental effects including cumulative effects.) (+ = positive effect; 0 = no effect; - = adverse effect; U = uncertain effect)		
7. AIR INSTALLATION COMPATIBLE USE ZONE/LAND USE (Noise, accident potential, encroachment, etc.)		/
8. AIR QUALITY (Emissions, attainment status, state implementation plan, etc.)		/
9. WATER RESOURCES (Quality, quantity, source, etc.)		/
10. SAFETY AND OCCUPATIONAL HEALTH (Asbestos/lead/chemical exposure, explosives safety, quantity, distance, bird, wildlife, etc.)		/
11. HAZARDOUS MATERIALS/WASTE (Radioactive materials, solid waste, etc.)		/
12. BIOLOGICAL RESOURCES (Wetlands/floodplains, threatened or endangered species, etc.)		/
13. CULTURAL RESOURCES (Native American burial sites, archeological, historical, etc.)		/
14. GEOLOGY AND SOILS (Topography, minerals, geothermal, installation Restoration Program, seismicity, etc.)		/
15. SOCIOECONOMIC (Employment/population projections, school and local fiscal impacts, etc.)		/
16. OTHER (Potential impacts not addressed above)		
SECTION III - ENVIRONMENTAL ANALYSIS DETERMINATION		
17. <input checked="" type="checkbox"/> PROPOSED ACTION QUALIFIES FOR CATEGORICAL EXCLUSION (CATEX) # <u>A23.7</u> OR <input type="checkbox"/> PROPOSED ACTION DOES NOT QUALIFY FOR A CATEX. FURTHER ENVIRONMENTAL ANALYSIS IS REQUIRED		
18. REMARKS		
19. ENVIRONMENTAL PLANNING FUNCTION CERTIFICATION (Name and Grade) PAUL F. EBERSBACH, GS-13 CHIEF, ENVIRONMENTAL FLIGHT		
20. SIGNATURE 		21. DATE 16 JAN 02

AF FORM 813, 19980801 (EF-V7)

THIS FORM CONSOLIDATES AF FORMS 813 AND 814.
PREVIOUS EDITIONS (IF BOTH FORMS ARE OBSOLETE)

PAGE 1 OF

PAGE 1 OF

XAX-10-02 100 4:22 PM 820 MSF/SF

FAX NO. 3214948767

P. 2

AF FORM 813, SEP 88, CONTINUATION SHEET

Continued from Block #4:

3.36 Blank Ammunition, Smoke grenades, and Signal Trip Flares. All vehicles will remain on authorized roads and trails. All training with the exception of Land Navigation will be conducted in Area 11 from 24 Jan-3 Feb 02. Land Navigation will be accomplished on the Land Navigation Course.

Attachment A

The Environmental Flight recommends that the 920 MSF/SF proceeds with it's requested training with the following precautions:

1. Florida Scrub-jays occupy portions of Areas 11. They will be nesting during the exercises. Guidance is to respect a 110 yard buffer around active jay nests by performing only activities that are transient in nature within the buffer. Transient means no more than two hours in any one location. The 920th's training dates, however, are early in the nesting season so the new nests will not be located by the APAFR biologists. Therefore, the recommendation is for the 920th to treat the traditional jay territories as potential nest locations by performing only activities that are transient in nature. These territories are shown on Attachment B. If nest locations are found prior to training, the APAFR biologist will mark the nests with a trail of orange surveying ribbon. The first ribbon location starts off as two ribbons tied together prior to departing a service road or trail. From there single ribbons lead and end at a nest location.
2. The vehicles and ATVs used in the training are to remain on established roads that are assigned names. These names are found on road signs and in the Avon Park Air Force Range Public Recreation Area Map.

DEPARTMENT OF THE AIR FORCE
AIR FORCE RESERVE COMMAND

15 Jan 02

MEMORANDUM FOR 347th WG, OL-A Det 1/ROOG, ATTN: Wayne Stewart

FROM: 920 MSF/SF

SUBJECT: Range Request for Security Forces Training

1. Please accept this as a formal request to reserve the use of the Avon Park AF Range from 24-03 Jan 02. This exercise will consist of Security Forces Ground Combat Skills Training. The training will consist of training on Patrolling, Night Operations, Constructing Individual Fighting Positions, Land Navigation, Tactical Deployment, Convoy, Use of Hand and Arm Signals, and Field Survival. The team will consist of 16 Security Forces Personnel from the 920 Security Forces Element, Patrick AFB, FL. Team logistical support will be accomplished with (2) military vehicles and (2) ATVs. All vehicles will remain on authorized roads and trails.

2. The following ranges and facilities will be needed in order to conduct this training:

- a. Area 11, 24 Jan-3 Feb 02
- b. Classroom and Kitchen (the old dining facility) 24 Jan-3 Feb 02
- c. Billets for (16) Males
- d. Land Navigation Course

3. An ADVON team consisting of (2) Security Forces personnel will arrive at your facility on 24 Jan 02 to conduct set-up and preplanning. Fourteen additional Security Forces personnel will arrive on 26 Jan 02 to begin the FTX. If there are any questions, please contact TSgt Robert Cowart at DSN 854-0487.

4. Thanks you for your cooperation and assistance in this matter.

ROBERT J. COWART JR., TSgt, USAFR
920TH Chief, Security Forces Operations



DEPARTMENT OF THE AIR FORCE
AIR FORCE RESERVE COMMAND
920TH RESCUE GROUP
PATRICK AFB, FLORIDA

05 Apr 2001

MEMORANDUM FOR 347th WG, OL-A Det 1/ROOG, ATTN: Wayne Stewart
FROM TSGT JOHN M. SHIMAN / DSN 854-6891
SUBJECT: Range Request for Pararescue Training

1. Please accept this as a formal request to reserve the use of the Avon Park Bombing Range from 24 April to 26 April 2001. This exercise will consist of Helicopter insertion and ground operations, land navigation, tactical movements and medical training. The total amount of personnel involved with the training scenario is 13. The insertion team will consist of 8 Pararescue personnel. There will be qualified medical personnel attending with the appropriate medical support equipment at all times. Team logistical support will be accomplished with two military vehicles. All vehicles will remain on authorized roads and trails.
2. The following ranges and facilities will be needed in order to conduct this training:
 - a. Areas 11, 11a, 12, and 13
 - b. Van Eeghan DZ, Oscar LZ, Duey LZ, 19th Hole LZ
 - c. Billeting for five or Area 13 (Oscar range hut)
 - d. Avon Park AF range airfield (26 APR 01) for transload
3. An advon team will be at your facility on 24 April to plot points and finalize the exercise plan. If there are any questions, please contact the Pararescue Training Office at DSN 854-6891, POC TSgt John Shiman.

JOHN M. SHIMAN, TSGT, USAF
920th Pararescue Team

STAFF SUMMARY SHEET

	TO	ACTION	SIGNATURE (Surname), GRADE AND DATE		TO	ACTION	SIGNATURE (Surname), GRADE AND DATE
1	OLA/ROO/SW	COORD		6	DET 1/CC	APPROV	
2	OLA/OGXC	COORD		7			
3	OLA/CEP/SE	COORD		8			
4	OLA/CEV	COORD	<i>Det 1/ROOG</i>	9			
5	DET 1/RO	COORD		10			

SURNAME OF ACTION OFFICER AND GRADE

STEWART, GS-9

SYMBOL

347WG,OLA
Det 1/ROOG

PHONE

Ext 140
Fax 189TYPIST'S
INITIALS

WS

SUSPENSE DATE

3 working days from
date of receipt

SUBJECT

Training Request

DATE

05 MAR 01

SUMMARY

1. The attached Unit Training Request is provided for your review and comment. Please return this package with your comments directly to ROOG.

2. Exercise Overview:

a. Unit Name: 920 RQSb. Date of Exercise: 24-26 APR 01c. Agency: US AIR FORCEd. Unit Point of Contact: TSGT SHIMON 854-6891e. Purpose of Exercise: FTXf. Date of Site Survey: N/A

3. Description of Exercise Activities is contained at TAB 1.

4. 347th WG, OLA Det 1/ROOG POC is Wayne Stewart, Ext 140 or Mike Goodson, Ext 235.

RECOMMENDATION:

5. 347th WG, Det 1/CC, approve/disapprove requested exercise.

A. W. STEWART, DAF
Range Ops Ground Coordinator1 TAB
AF Form 813Returned
via dist
64

FILE UNIT

FILE COPY

AF FORM 813, AUG 82, CONTINUATION SHEET

Continued Block 4. conduct training that closely resembles areas of possible real world conflict. Avon Parks variety of ranges provide environments which will maximize parachute training.

Continued Block 5. ammunition during tactical movements throughout areas 11, 11a, 12, and 13. Land navigation, medical skills, and tactical Bivouac training will also be conducted in areas 11, 11a, 12, and 13. Extraction will be accomplished on 26 APR 01 by HH-60G at 19th hole LZ followed by a transload to an HC-130 at the Avon Park AF range airfield. Ground party will carry fire extinguishers and shovels to prevent any fire mishaps.

PAGE OF PAGES

Attachment A

We recommend the 920 RQG proceed with their requested training. We recommend the following precautions for the following endangered bird species:

1. Florida Scrub-jays occupy portions of Areas 11, 11A, 12, and 13. The jays will be nesting during the training exercise. The attached map shows jay territories for the year 2000 and jay nest locations for the year 2000 and 2001. The 2001 nest locations are currently being updated as active nests are found. For this reason, a new, updated map maybe supplied to the unit just prior to the exercise. The nature of the 920 RQG's mission is acceptable for the unit to enter scrub-jay territories. If the 920 RQG sees active nests, we recommend that the unit spend no more than two hours when within 110 yards or less of the nest. After two hours, the 110 yard radius should act as a buffer.
2. Red-cockaded Woodpecker nesting clusters are found in Areas 11 and 11A. These clusters consist of pine trees marked with painted white bands around their boles. The white bands are approximately two feet wide and are about four feet above the ground. These tree clusters are no longer active, training by the 920 RQG should continue as normal. Damage to the marked trees should be avoided.
3. Florida Grasshopper Sparrows are located in Area 13. Training within the sparrow habitat is limited to being transient in nature - remaining in place for no more than two hours.

STAFF SUMMARY SHEET

	TO	ACTION	SIGNATURE (Surname), GRADE AND DATE		TO	ACTION	SIGNATURE (Surname), GRADE AND DATE
1	OLA/ROO/SW	COORD		6	DET 1/CC	APPROV	
2	OLA/OGXC	COORD		7			
3	OLA/CEE/SE	COORD		8			
4	OLA/CEV	COORD	<i>Wayne Stewart, 24 May 01</i>	9			
5	DET 1/RO	COORD		10			

SURNAME OF ACTION OFFICER AND GRADE

SYMBOL

PHONE

TESTS

SUSPENSE DATE

STEWART, GS-9

347WG,OLA
Det 1/ROOGExt 140
Fax 189

WS

3 working days from
date of receipt

SUBJECT

Training Request

DATE

22 MAY 01

SUMMARY

1. The attached Unit Training Request is provided for your review and comment. Please return this package with your comments directly to ROOG.

2. Exercise Overview:

a. Unit Name: 920 ~~Avon Park~~ ROL

b. Date of Exercise: _____

c. Agency: US AIR FORCE

d. Unit Point of Contact: TELT SUTIMAN

e. Purpose of Exercise: PARA RESCUE TRAINING

f. Date of Site Survey: N/A

3. Description of Exercise Activities is contained at TAB 1.

4. 347th WG, OLA Det 1/ROOG POC is Wayne Stewart, Ext 140 or Mike Goodson, Ext 235.

RECOMMENDATION:

5. 347th WG, Det 1/CC, approve/disapprove requested exercise.

A. W. STEWART, DAF
Range Ops Ground Coordinator

1 TAB
AF Form 813



to ROOG
via dist
5/24

may 22 01 04:23p

820th Pararescue Team

321 484 8025

P.3

REQUEST FOR ENVIRONMENTAL IMPACT ANALYSIS		Report Control Symbol None
<p>ANYTHING: Section I to be completed by Proposer (Section II and III to be completed by Environmental Planning Function. Guidance on separate sheets as necessary. Information appropriate from each sheet.)</p>		
SECTION I - PROPOSER INFORMATION		
1. To Environmental Planning Function OLA, Det 1, 347 WG/ROOG, 236 South Blvd, Avon Park AF Range, FL 33825-5700	2. FROM (Proposer organization and functional address omitted) 920th RQG (39th/301st Pararescue), 698 Rescue Road, Patrick AFB, FL 32925	3a. TYPING NO. DSN 854-6891
3. TITLE OF PROPOSED ACTION Pararescue Combat Readiness Training Exercise (CRTE)		
4. PURPOSE AND NEED FOR ACTION (Clearly define the purpose and need for the action) The 920th Pararescue Team will be conducting parachute insertion, navigation, tactical movements, survivor contact, medical training, and helicopter ex-fil during the period of 01-03 June 2001. Our purpose is to conduct training that closely		
5. DESCRIPTION OF PROPOSED ACTION AND ALTERNATIVES (Provide sufficient detail to understand the action and alternatives) The 920th Pararescue Team will insert by parachute @ Van Egghen DZ on 02 June 01 at approximately 1500. During all operations, a ground party will be provided by the 920th RQG adven team. The pararescue team and aggressors will be		
6. PROPOSER APPROVAL (Name and Grade) John M. Shiman, TSgt, USAF 39th RQS, Tactics NCOIC	7a. SIGNATURE 	7b. DATE 11 May 01
SECTION II - PRELIMINARY ENVIRONMENTAL SURVEY: (Check appropriate box and provide potential environmental effects including sensitive effects.) (+ = positive effect; 0 = no effect; - = adverse effect; U = unknown effect)		
7. AIR INSTALLATION COMPATIBLE USE (Zoning and use limits, ambient potential, environmental, etc.)		✓
8. AIR QUALITY (Ambient, aircraft exhaust, noise, hydrocarbon, etc.)		✓
9. WATER RESOURCES (Quality, quantity, usage, etc.)		✓
10. SAFETY AND OCCUPATIONAL HEALTH (Ambient, aircraft exhaust, noise, hydrocarbon, etc.)		✓
11. HAZARDOUS MATERIALS (Waste, hydrocarbon, etc.)		✓
12. BIOLOGICAL RESOURCES (Flora, fauna, etc.)		✓
13. CULTURAL RESOURCES (Historic, archaeological, etc.)		✓
14. GEOLOGY AND SOILS (Topography, geology, groundwater, etc.)		✓
15. ECONOMIC (Employment, etc.)		✓
16. OTHER (Potential impacts not addressed above)		
SECTION III - ENVIRONMENTAL ANALYSIS DETERMINATION		
17. <input checked="" type="checkbox"/> PROPOSED ACTION QUALIFIES FOR CATEGORICAL EXCLUSION (CATEX) YES	OR	
18. REPAIRS Same training as performed by the 920th RQS on 24-26 Apr 01 See Attachment A & map.		
19. ENVIRONMENTAL PLANNING FUNCTION CERTIFICATION (Name and Grade) Paul T. Ebert, TSgt, USAF 39th RQS, Tactics NCOIC	20. SIGNATURE 	21. DATE 24 May 01

AF FORM 815, AUG 85 (REV 1)

PREPARED FOR

THIS FORM COMPLETES AF FORM 815 AND IS A
PREVIOUS EDITIONS OF BOTH FORMS ARE OBSOLETE

PAGE

1

OF

2

PAGE(S)

04/29/2002 12:11

820th Parachute Team

321 484 8025

p. 4

AF FORM 813, AUG 82, CONTINUATION SHEET

Continued Block 4. resembles areas of possible real world conflict. Avon Parks variety of ranges provide environments which will maximize parachute training.

Continued Block 5. using 5.56 mm blank ammunition during tactical movements throughout areas 11, 11a, 12, and 13. Land navigation, medical skills, and tactical Bivouac training will also be conducted in areas 11, 11a, 12, and 13. Extraction will be accomplished on 03 June 01 by HH-60G at Dusey LZ. Ground party will carry fire extinguishers and shovels to prevent any fire mishaps.

Vehicles - 2

Personnel - 11

Attachment A

We recommend the 920 RQW proceed with their requested training. We recommend the following precautions for the following endangered bird species:

1. Florida Scrub-jays occupy portions of Areas 11, 11A, 12, and 13. The jays will be nesting during the training exercise. The attached map shows jay territories for the year 2000 and jay nest locations for the year 2000 and 2001. The 2001 nest locations are currently being updated as active nests are found. For this reason, a new, updated map maybe supplied to the unit just prior to the exercise. The nature of the 920 RQW's mission is acceptable for the unit to enter scrub-jay territories. If the 920 RQW sees active nests, we recommend that the unit spend no more than two hours when within 110 yards or less of the nest. After two hours, the 110 yard radius should act as a buffer.
2. Red-cockaded Woodpecker nesting clusters are found in Areas 11 and 11A. These clusters consist of pine trees marked with painted white bands around their boles. The white bands are approximately two feet wide and are about four feet above the ground. These tree clusters are no longer active, training by the 920 RQW should continue as normal. Damage to the marked trees should be avoided.
3. Florida Grasshopper Sparrows are located in Area 13. Training within the sparrow habitat is limited to being transient in nature – remaining in place for no more than two hours.
4. Fire and pyrotechnics may be restricted depending on the level of wildland fire danger. The 920 RQW will be informed during the environmental briefing as to the level of fire danger with corresponding restrictions if restrictions are imposed.

May 22 01 02:23p

920th Pararescue Team

321 494 9025

p.2



DEPARTMENT OF THE AIR FORCE
AIR FORCE RESERVE COMMAND
920TH RESCUE GROUP
PATRICK AFB, FLORIDA

11 May 2001

MEMORANDUM FOR 347TH WG, OL-A Det 1/ROOG, ATTN: Wayne Stewart

FROM TSGT JOHN M. SHIMAN / DSN 854-6891

SUBJECT: Range Request for Pararescue Training

1. Please accept this as a formal request to reserve the use of the Avon Park Bombing Range from 01 to 03 June 2001. This exercise will consist of parachute insertion by HC-130 at Van Eeghan DZ on 02 June at 1500. The team will practice land navigation, tactical movements and medical training. Extraction will be by HH-60G helicopter at Duey LZ on 03 June at 1200. There will be qualified medical personnel attending with the appropriate medical support equipment at all times. Team logistical support will be accomplished with two military vehicles. All vehicles will remain on authorized roads and trails.
2. The following ranges and facilities will be needed in order to conduct this training:
 - a. Areas 11, 11a, 12, and 13; 01-03 June
 - b. Van Eeghan DZ, Duey LZ; 2-3 June
 - c. Billeting (Oscar range hut); 01-03 June
3. An advon team will report to your facility on 01 June to receive range safety briefing, plot points and finalize the exercise plan. If there are any questions, please contact the Pararescue Training Office at DSN 854-6891, POC TSgt John Shiman.

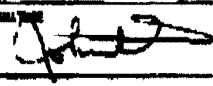
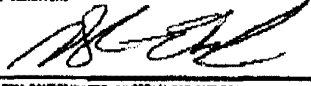
JOHN M. SHIMAN, TSGT, USAF
920th Pararescue Team

Jul 16 01 03:23p

920th Pararescue Team

921 494 9025

P-3

REQUEST FOR ENVIRONMENTAL IMPACT ANALYSIS		Report Control Symbol 025
INSTRUCTIONS: Section I to be completed by Proponent; Sections II and III to be completed by Environmental Planning Function. Condition on separate sheets as necessary. Information appropriate form included.		
SECTION I - PROPOSER INFORMATION		
1. TO Environmental Planning Function OLA, Box 1, 347 WG/ROOG, 236 South Blvd, Avon Park AF Range, FL 32825-5700	2. FROM (Proposer organization and functional address system) 920th RQG (39th/301st Pararescue), 698 Rescue Road, Patrick AFB, FL 32925	3a. TELEPHONE NO. DSN 834-6891
3. TITLE OF PROPOSED ACTION Pararescue Weapons Training		
4. PURPOSE AND NEED FOR ACTION (Identify decision to be made and need done) The 920th Pararescue Team will be conducting weapons training during the period of 30 July to 03 August 2001. Our purpose is to conduct familiarization and proficiency training of unit assigned weapons and pyrotechnics. Avon Parks variety of		
5. DESCRIPTION OF PROPOSED ACTION AND ALTERNATIVES (SOPAs) (Provide sufficient details for notification of the teleconference.) The 920th Pararescue Team will arrive at Avon Park on 30 July 01 at approximately 1400. The team will receive range safety briefings prior to setting up at Echo Range. Two team leaders will run all weapons classes and operations. Medical		
6. PROPOSER APPROVAL (Name and Grade) John M. Shiman, TSgt, USAF 39th RQS, Tactics NCOIC	7a. SIGNATURE 	8a. DATE 16 Jul 01
SECTION II - PRELIMINARY ENVIRONMENTAL SURVEY. (Check appropriate box and provide potential environmental effects including cumulative effects) (+ = positive effect; - = no effect; * = adverse effects; = unknown effects)		
7. AIR INSTALLATION COMPATIBLE USE ZONELAND RQS (Noise, aircraft potential, surroundings, etc.)		/
8. AIR QUALITY (Emissions, accidents, noise, other implementation plan, etc.)		/
9. WATER RESOURCES (Quality, quantity, source, etc.)		/
10. SAFETY AND OCCUPATIONAL HEALTH (Hazardous materials, equipment, explosives safety quantity-distance, etc.)		/
11. HAZARDOUS MATERIALS/WASTE (Hazardous quantities, etc.)		/
12. BIOLOGICAL RESOURCES (Wildlife, riparian, etc.)		/
13. CULTURAL RESOURCES (Historic, prehistoric, etc.)		/
14. GEOLOGY AND SOILS (Topography, seismicity, geophysics, immediate long-term projects, etc.)		/
15. SOCIOECONOMIC (Employment, population projections, school and other local impacts, etc.)		/
16. OTHER (Potential impacts not covered above)		
SECTION III - ENVIRONMENTAL ANALYSIS DETERMINATION		
17. <input checked="" type="checkbox"/> PROPOSED ACTION ANALYZES FOR CATEGORICAL EXCLUSION (CATEX) <u>A23.7</u> (or) <input type="checkbox"/> PROPOSED ACTION DOES NOT QUALIFY FOR A CATEX. FURTHER ENVIRONMENTAL ANALYSIS IS REQUIRED.		
18. REMARKS Same training as conducted in EA "1st Battalion, 76th Ranger Regiment Fixed Wing Bilateral Training Exercise at APAFR, July 1998."		
19. ENVIRONMENTAL PLANNING FUNCTION CERTIFICATION (Name and Grade) Paul F. Eberle, TSgt, USAF Chief, Environmental Flight	20a. SIGNATURE 	20b. DATE 17 Jul 01

AF FORM 813, AUG 83 (E-F-V)

(PREVIOUS EDITIONS)

THIS FORM CONSOLIDATES AF FORMS 813 AND 814.
PREVIOUS EDITIONS OF BOTH FORMS ARE OBSOLETE.

PAGE 1 OF 2 PAGES

Jul 18 01 03:24p

820th Pararescue Team

321 494 9025

P. 4

AF FORM 873, AUG 01, CONTINUATION SHEET

Continued Block 4. ranges provide environments which will maximize pararescue weapons training.

Continued Block 5. support will be self supported. The team schedule is as follows: Monday, 30 July: Set up camp and complete ground training, no fire day. Tuesday, 31 July: 0800-1200L, M-14 course of fire with 7.62 ball. 1300-1700L, M-870 course of fire with 12 gauge rounds. Wednesday, 01 August, 1000-1200L, M16-18 smoke class. 1300-1800L, M-203 course of fire with 40mm rounds. 2000- 2400L, GAU-5 night fire course with 5.56 mm ball and 5.56 tracer rounds. Thursday, 02 August, 0900-1200L, Hand Grenade class. 1300- 1700L, Booby Trap class. 1800- 2200L, Pyrotechnics class Training will cease on Thursday, 02 August at 2400 hours. Final cleanup and packout will be on Friday, 03 August. The team will carry fire extinguishers and shovels to prevent any fire mishaps.

Jul 18 01 03:23p

820th Pararescue Team

321 484 9025

P. 2



DEPARTMENT OF THE AIR FORCE
AIR FORCE RESERVE COMMAND
920TH RESCUE GROUP
PATRICK AFB, FLORIDA

16 Jul 2001

MEMORANDUM FOR 347th WG, OL-A Det 1/RODG, ATTN: Wayne Stewart

FROM TSGT JOHN M. SHIMAN / DSN 854-6891

SUBJECT: Range Request for Pararescue Training

1. Please accept this as a formal request to reserve the use of the Avon Park Bombing Range from 30 July to 03 August 2001. This exercise will consist of weapons (M-14, M-870, M-203, and Gau-5) and munitions (Mk-18 Smokes, Hand grenades, and miscellaneous pyrotechnics) training. The total amount of personnel involved with the training scenario is 10. There will be qualified medical personnel attending with the appropriate medical support equipment at all times. Team logistical support will be accomplished with two military vehicles. All vehicles will remain on authorized roads and trails.
2. The following ranges and facilities will be needed in order to conduct this training:
 - a. Echo Range
 - b. Echo Range Hut for billeting
3. The entire 10-man team will be at your facility on 30 July to receive range safety briefings and finalize the exercise plan. If there are any questions, please contact the Pararescue Training Office at DSN 854-6891, POC TSgt John Shiman.

JOHN M. SHIMAN, TSGT, USAF
920th Pararescue Team

*Team will have to stay at Oscar Range
or DORM. UNABLE to use ECHO HUT*

STAFF SUMMARY SHEET

	TO	ACTION	SIGNATURE (Signature), GRADE AND DATE		TO	ACTION	SIGNATURE (Signature), GRADE AND DATE
1	OLA/ ROO/SW	COORD		6	DET 1/ CC	APPROV	
2	OLA/ OGXC	COORD		7			
3	OLA/ CEF/SE	COORD		8			
4	OLA/ CEV	COORD	<i>Det 1/CC 7/17</i>	9			
5	DET 1/ RO	COORD		10			

SURNAME OF ACTION OFFICER AND GRADE

SYMBOL

PHONE

TYPIST'S
INITIALS

SUSPENSE DATE

STEWART, GS-9

347WG,OLA
Det 1/ROOGExt 140
Fax 189

WS

3 working days from
date of receiptSUBJECT
Training Request

DATE

17 JUL 01

SUMMARY

1. The attached Unit Training Request is provided for your review and comment. Please return this package with your comments directly to ROOG.

2. Exercise Overview:

- a. Unit Name: 920 RDG
- b. Date of Exercise: 30 JUL - 03 AUG 01
- c. Agency: US AIR FORCE
- d. Unit Point of Contact: TSGT SHIMAN
- e. Purpose of Exercise: WEAPONS TRAINING
- f. Date of Site Survey: N/A

3. Description of Exercise Activities is contained at TAB 1.

4. 347th WG, OLA Det 1/ROOG POC is Wayne Stewart, Ext 140 or Mike Goodson, Ext 235.



RECOMMENDATION:

5. 347th WG, Det 1/CC, approve/disapprove requested exercise.

A. W. STEWART, DAF
Range Ops Ground Coordinator

1 TAB
AF Form 813

FILE COPY

REQUEST FOR ENVIRONMENTAL IMPACT ANALYSIS		Report Control Symbol RQS
<p>INSTRUCTIONS: Section I to be completed by Proponent, Section II and III to be completed by Environmental Planning Function. Checkmark to appropriate items in summary. Additional appropriate items indicated.</p>		
SECTION I - PROPOSER INFORMATION		
1. TO (Environmental Planning Function) Mike Goodson or Wayne Stewart	2. FROM (Proponent organization and functional address system) 920 RQS/Paratrooper Team Patrick AFB, FL 32925	3. FILE/WORK NO. DSN: 854-6891
4. TITLE OF PROPOSED ACTION Paratrooper Combat Rescue Mass Casualty Exercise		
5. PURPOSE AND NEED FOR ACTION (Priority decision to be made and need date)		
Exercise Paratrooper HALO parachuting and combat medical skills in a remote field environment. Then to be extracted by helicopter.		
6. DESCRIPTION OF PROPOSED ACTION AND ALTERNATIVES (Provide sufficient details for evaluation of the total action) Request to use Van Bughen DZ, Avon Park for Paratrooper Combat Medical Training Exercise. No pyrotechnics used.		
7. PROPOSER APPROVAL (Name and Title) Alexander L. Abbey, TSOT 920 Paratrooper Team	8. SIGNATURE 	9. DATE 21 Mar 01
SECTION II - EVALUATION BY ENVIRONMENTAL FUNCTION. Check appropriate box and provide pertinent environmental effects (Indicate consideration of effects) (+ = positive effects, - = no effect, ? = adverse effects, (u) = unknown effects)		
10. ARE INSTANTANEOUS COMPLIANCE USE CORRELATION USE (State, condition potential, consequences, etc.)		
11. AIR QUALITY (Ambient, background, noise, water, implementation plan, etc.)		
12. WATER RESOURCES (Quality, quantity, source, etc.)		
13. SAFETY AND OCCUPATIONAL HEALTH (Status, potential, consequences, etc.)		
14. NEIGHBORHOOD ENVIRONMENTAL EFFECTS (Ambient, background, noise, etc.)		
15. ENVIRONMENTAL RESOURCES (Ambient, background, noise, etc.)		
16. CULTURAL RESOURCES (Native American, World War, archaeological, historical, etc.)		
17. BIOLOGY AND SOIL (Topography, vegetation, geohydrology, hydrology, hydrogeology, etc.)		
18. ECONOMIC (Economic, hydrogeology, geology, etc.)		
19. OTHER (Proponent impact not covered above)		
SECTION III - ENVIRONMENTAL ANALYSIS DETERMINATION		
17. <input checked="" type="checkbox"/> PROPOSED ACTION QUALIFIED FOR DETERMINED ENVIRONMENTAL ANALYSIS <u>A2.3.7</u> ; OR PROPOSED ACTION DOES NOT QUALIFY FOR A CATER. FURTHER ENVIRONMENTAL ANALYSIS IS REQUIRED.		
18. REMARKS 1. As per Mr. Wayne Stewart on 3/26, i.e. on DUEY L2, not Van Bughen DZ. as requested. 2. Ground vehicles remain on established roads.		
19. ENVIRONMENTAL PLANNING FUNCTION QUALIFICATION (Signature and Title) RONALD S. PRINCE 65-12	20. SIGNATURE 	21. DATE 3/26/01

Feb 28 01 03:18p 820th Pararescue Team 321 494 8025

p.4

AF FORM 813, AUG 83, CONTINUATION SHEET

Continued Block 4. resembles areas of possible real world conflict. Avon Parks variety of ranges provide environments which will maximize pararescue training.

Continued Block 5. ammunition during tactical movements throughout area 4. Land navigation, medical skills, and tactical bivouac training will also be conducted in area 4. Extraction will be accomplished on 26 APR 01 by HH600 at Huey DZ to a transport to an HC-130 at the Avon Park AF range airfield. Ground Party will carry fire extinguishers and shovels to prevent any fire mishaps.

Feb 20 01 03:18p

820th Pararescue Team

321 484 9025

p.2



DEPARTMENT OF THE AIR FORCE
AIR FORCE RESERVE COMMAND
920TH RESCUE GROUP
PATRICK AFB, FLORIDA

28 Feb 2001

MEMORANDUM FOR 347th WG, OL-A Det 1/ROOG, ATTN: Wayne Stewart

FROM TSGT JOHN M. SHIMAN / DSN 854-6891

SUBJECT: Range Request for Pararescue Training

1. Please accept this as a formal request to reserve the use of the Avon Park Bombing Range from 24 April to 26 April 2001. This exercise will consist of parachute and ground operations, land navigation, tactical movements and medical training. The team will consist of 11 Pararescue personnel. There will be qualified medical personnel attending with the appropriate medical support equipment at all times. Team logistical support will be accomplished with two military vehicles. All vehicles will remain on authorized roads and trails.
2. The following ranges and facilities will be needed in order to conduct this training:
 - a. Hard Luck DZ
 - b. Area 4
 - c. Billeting for three or Area 13 (Oscar range hut)
3. An avon team will be at your facility on 24 April to plot points and finalize the exercise plan. If there are any questions, please contact the Pararescue Training Office at DSN 854-6891, POC TSgt John Shiman.

4, 94,

A handwritten signature in black ink, appearing to read "John M. Shiman".

JOHN M. SHIMAN, TSGT, USAF
920th Pararescue Team

STAFF SUMMARY SHEET

	TO	ACTION	SIGNATURE (Surname), GRADE AND DATE		TO	ACTION	SIGNATURE (Surname), GRADE AND DATE
1	OLA/ROO/SW	COORD		6	DET 1/CC	APPROV	
2	OLA/OGXC	COORD		7			
3	OLA/CEV/SE	COORD		8			
4	OLA/CEV	COORD	<i>W. Stewart GS-9</i>	9			
5	DET 1/RO	COORD		10			

SURNAME OF ACTION OFFICER AND GRADE STEWART, GS-9	SYMBOL 347WG,OLA Det 1/ROOG	PHONE Ext 140 FAX 189	TYPIST'S INITIALS WS	SUSPENSE DATE 3 working days from date of receipt
SUBJECT Training Request				DATE 28 FEB 01

SUMMARY

1. The attached Unit Training Request is provided for your review and comment. Please return this package with your comments directly to ROOG.

2. Exercise Overview:

- a. Unit Name: 920 ABG
- b. Date of Exercise: 24-26 APR 01
- c. Agency: US AIR FORCE
- d. Unit Point of Contact: TSGT SHIMAN 854-6891
- e. Purpose of Exercise: FTX
- f. Date of Site Survey: N/A

3. Description of Exercise Activities is contained at TAB 1.

4. 347th WG, OLA Det 1/ROOG POC is Wayne Stewart, Ext 140 or Mike Goodson, Ext 235.

RECOMMENDATION:

5. 347th WG, Det 1/CC, approve/disapprove requested exercise.

A. W. STEWART, DAF
Range Ops Ground Coordinator

1 TAB
AF Form 813

*sent to mail
+ put in file to
box 6115 on
2/5*

FILE COPY

Attachment A

Recommendations for Training in Area 4

A. West of Morgan Hole Creek

1. Long term ground training (more than two hours in one location) acceptable in any location outside of the Florida Grasshopper Sparrow habitat.
2. Long term ground training acceptable inside the Florida Grasshopper Sparrow habitat north of the County Line Road.
3. Training restricted to short term ground training (less than two hours in one location) inside Florida Grasshopper Sparrow habitat south of the County Line Road.

B. East of Morgan Hole Creek

1. Long term ground training and use of Huey LZ acceptable inside Florida Grasshopper Sparrow habitat.
2. Long term ground training acceptable outside of Florida Grasshopper Sparrow habitat.

Appendix 5

Biological Assessment for Cherry Point Bombing

Target 9 and Bombing Target 11 in Palmico South, North Carolina

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Southeast Regional Office
9721 Executive Center Drive North
St. Petersburg, FL 33702
(727) 570-5312; FAX 570-5517
<http://caldera.sero.nmfs.gov>

F/SER3:DK:mdh

Mr. William H. Rogers
Natural Resources Manager
Marine Corps Air Station
PSC Box 8006
Cherry Point, NC 28533-0006

SUBJECT: Endangered Species Act Section 7 Consultation on Ongoing Ordnance Delivery at Marine Corps Air Station Cherry Point Bombing Target 9 and Bombing Target 11 in Pamlico Sound, North Carolina.

Dear Mr. Rogers:

This document represents the National Marine Fisheries Service's (NOAA Fisheries) biological opinion (Opinion) based on our review of the activities to be conducted by the United States Marine Corps Air Station in Cherry Point, North Carolina (MCAS) and their effects on loggerhead turtles (*Caretta caretta*), Kemp's ridley turtles (*Lepidochelys kempii*), green turtles (*Chelonia mydas*), and leatherback turtles (*Dermochelys coriacea*). This Opinion has been prepared in accordance with section 7(a)(2) of the Endangered Species Act (ESA) of 1973, as amended (16 U.S.C. 1536 *et seq.*). The NOAA Fisheries consultation number for this action is F/SER/2002/00130. Please refer to this number in any future correspondence regarding this consultation.

This Opinion is based on information provided in a biological assessment prepared by the MCAS and received by NOAA Fisheries' Protected Resources Division on March 7, 2002, published and unpublished scientific information on the biology and ecology of threatened and endangered marine species within the action area, and other sources of information. A complete administrative record of this consultation is on file at the NOAA Fisheries Southeast Regional Office in St. Petersburg, Florida.

The Opinion states NOAA Fisheries' belief that the proposed action is not likely to jeopardize the continued existence of loggerhead, Kemp's ridley, green, or leatherback sea turtles. However, NOAA Fisheries anticipates incidental take of these species and has issued an Incidental Take Statement (ITS) pursuant to section 7 of the ESA. This ITS contains reasonable and prudent measures with implementing terms and conditions to help minimize this take.

If you have any questions, please contact Dennis Klemm, fishery biologist, at the number above or by e-mail at Dennis.Klemm@noaa.gov.

Sincerely,

Joseph E. Powers, Ph. D.
Acting Regional Administrator

Enclosure

cc: F/PR3
F/SER41- R. Sechler

File: 1514-22 g.8 Marine Corp Cherry Point Bombing Range
O:\section7\formal\Cherry Point Bombing.wpd

Endangered Species Act - Section 7 Consultation Biological Opinion

Action Agency: Marine Corps Air Station - Cherry Point.

Activity: Ongoing Ordnance Delivery at Bombing Target 9 (BT-9) and Bombing Target 11 (BT-11) at Marine Corps Air Station, Cherry Point, North Carolina. (Consultation No. F/SER/2002/00130)

Consultation Conducted By: National Marine Fisheries Service, Southeast Regional Office,
Protected Resources Division, St. Petersburg, Florida

Approved By: _____
Joseph E. Powers, Ph.D., Acting Regional Administrator

Date Issued: _____

Consultation History

- On March 24, 2000, the National Marine Fisheries Service (NOAA Fisheries) sent the United States Marine Corps Air Station in Cherry Point, North Carolina (MCAS) a list of threatened and endangered species with the potential to occur in that area.

- On March 2, 2002, NOAA Fisheries Southeast Regional Office (SERO) Protected Resources Division (PR) received a letter from the MCAS with an attached biological assessment (BA) for the ongoing delivery of ordnance at BT-9 and BT-11. MCAS determined that there will be no effect on the blue (*Balaenoptera musculus*), finback (*Balaenoptera physalus*), humpback (*Megaptera novaeangliae*), sei (*Balaenoptera borealis*), and sperm (*Physeter macrocephalus*) whales, nor on the hawksbill sea turtle (*Eretmochelys imbricata*) and shortnose sturgeon (*Acipenser brevirostrum*). A "may effect, but not likely to adversely affect" determination was made for the right whale (*Balaena glacialis*) and the leatherback sea turtle (*Dermochelys coriacea*). MCAS has determined that the inert ordnance activity is not likely to affect any listed species, but that ongoing, live ordnance delivery may affect, and is likely to adversely affect, loggerhead (*Caretta caretta*), green (*Chelonia mydas*), and Kemp's ridley (*Lepidochelys kempi*) sea turtles, thereby triggering formal consultation. NOAA Fisheries considers this letter and BA a complete consultation package.

BIOLOGICAL OPINION

I. Description of Proposed Action

The Marine Corps manages two bombing targets (BT-9 and BT-11) in Pamlico Sound, N.C., for the purpose of training military personnel in the skill of ordnance delivery (by aircraft and occasionally small watercraft) at a target. Related actions in support of the ordnance delivery training include maintenance and replacement of targets on water and land and boat operations for personnel and equipment transport.

The BA submitted by the MCAS does not address impacts of flight operations themselves. These impacts for BT-9 and BT-11 have been previously addressed in the March 1998 *Final Environmental Impact Statement, Realignment of F/A-18 Aircraft and Operational Functions from Naval Air Station Cecil Field Florida, to other East Coast Installations*, and the April 1999 *Aircraft Noise Study for the Introduction of the V-22 to the 2nd MAW at Eastern North Carolina*. These two documents did not address the impacts of ordnance delivery.

BT-9 is used for various aircraft and small watercraft training in bombing techniques and target training. In this area both inert ordnance (practice bombs with no explosives) up to 2,000 pounds, and strafing and explosive ordnance (not to exceed 100 pounds TNT equivalent) are authorized for use. The actual target within the BT-9 range is a ship hull which is grounded on the Brant Island Shoal.

The BT-11 area is a multi-purpose complex with both land- and water-based targets including bulls eye, boat, simulated truck convoy, simulated train, simulated airstrip, strafing banner, and surface-to-air missile targets. The water-based targets are on the west side of Piney Island in Rattan Bay, and include a barge, PT boat, and remotely controlled boats. The complex is designed for both multiple aircraft and small watercraft strikes. Only inert ordnance is authorized on BT-11.

Further details on exact types, frequencies, and quantities of ordnance, as well as other detailed project information can be found in the *Biological Assessment for Ongoing Ordnance Delivery at Bombing Target 9 and Bombing Target 11* (MCAS 2001) which was reviewed for this Opinion. It is important to note, however, that all analyses provided in the BA are based upon what MCAS describes as a “typical amount of sorties over a year of operations” at the bombing targets. Normal year-to-year variation is not expected to cause a significant difference in the expected impacts at the action area. Should activities increase substantially in frequency or intensity, reinitiation would be required in order to consider the changed circumstances.

Action Area

The action area consists of two bombing target ranges, BT-9 and BT-11. These target ranges are located at the convergence of the Neuse River and Pamlico Sound in North Carolina. Pamlico Sound and its tributaries represent the second largest estuarine system in the United States, with the Neuse River providing the major source of freshwater inflow.

The range encompassing BT-9 is a circle with a 6 statute-mile diameter. This prohibited area is off limits to surface vessels, and is delineated by perimeter signs. The ship hull is replaced occasionally after damage from ordnance strikes has made it unuseable as a target. The replacement hull is placed directly over the site of the previous hull if possible, otherwise it is placed directly to the side of the previous hull.

BT-11 includes both land and water areas encompassing a total of 12,500 acres. It is located in Carteret County, N.C., with the land portion on Piney Island. Within the overall BT-11, there are areas restricted as danger zones on both full-time and intermittent bases. The Rattan Bay target prohibited area includes approximately 2,300 acres of water.

Actions to reduce adverse effects

The MCAS incorporates specific procedures into their operations which help to minimize adverse effects to listed species. During practice runs a target is declared foul if a protected species is sighted within 1,000 yards of the BT-9 target or anywhere within Rattan Bay. Operations may not commence until the animal(s) have moved outside of these ranges. It is also standard operating procedure for pilots to perform a visual check prior to ordnance delivery to determine if unauthorized civilian vessels or personnel, or protected species, are present. Pilots are directed to perform a low, cold (no ordnance delivered) first pass. Prior to granting a "First Pass Hot" (use of ordnance) to the aircrew, range personnel make every attempt to clear the area via visual inspection and remotely operated camera operations. The Range Controller may deny or approve the First Pass Hot clearance as conditions warrant.

The remotely operated range cameras are high resolution and, according to range personnel, even allows them to clearly see a duck floating near the target. A newer, enhanced system with night vision capability is being installed at both BT-9 and BT-11. The cameras allow viewers to see animals at the surface and breaking the surface, but not underwater.

Search and rescue sweeps via helicopter are also undertaken every morning prior to the commencement of range operations. The primary goal of the sweep is to ensure that the target area is clear of fishermen or any other persons, but also incorporates a visual inspection for protected species. Sweeps are flown at 100-300 feet above the water surface at speeds of 60-100 knots. The crews can communicate directly with the range personnel, allowing immediate notification if the target area is not clear.

II. Status of Listed Species and Critical Habitat

Much of the information for this section, as well as additional detailed information relating to the species biology, habitat requirements, threats, and recovery objectives can be found in the recovery plan for each species (see "References Cited" section).

The following listed species under the jurisdiction of NOAA Fisheries are known to occur in or near the action area:

Threatened

Loggerhead sea turtle	<i>Caretta caretta</i>
-----------------------	------------------------

Endangered

Leatherback sea turtle	<i>Dermochelys coriacea</i>
Hawksbill sea turtle	<i>Eretmochelys imbricata</i>
Kemp's ridley sea turtle	<i>Lepidochelys kempii</i>
Green sea turtle	<i>Chelonia mydas</i> *
Blue whale	<i>Balaenoptera musculus</i>
Finback whale	<i>Balaenoptera physalus</i>
Humpback whale	<i>Megaptera novaeangliae</i>
Sei whale	<i>Balaenoptera borealis</i>

Right whale	<i>Balaena glacialis</i>
Sperm whale	<i>Physeter macrocephalus</i>
Shortnose sturgeon	<i>Acipenser brevirostrum</i>

**Green sea turtles in U.S. Atlantic waters are listed as threatened except for the Florida breeding population which is listed as endangered. Due to the inability to distinguish between these populations away from the nesting beach, green sea turtles are considered endangered wherever they occur in U.S. waters.*

The blue, finback, humpback, sei, and sperm whales, hawksbill sea turtle, and shortnose sturgeon are not expected to be affected by activities conducted at the project site. The whales are very large animals that prefer deeper, oceanic waters and are highly unlikely to occur in the shallow action area. An exception to this is the right whale, which has been reported in inland waters, albeit infrequently, and therefore the potential for impact will be addressed. Reported shortnose sturgeon populations in North Carolina are restricted to the Cape Fear River and the western part of Albemarle Sound. There have been no reports of shortnose sturgeon from the Pamlico, Pungo, and Neuse rivers. Since this species is not known to occur in the study area, it is extremely unlikely that this species would be affected. The hawksbill sea turtle is not known to nest or feed in the project area, and population survey and stranding data support the assertion that they do not occur in that area except in very rare instances.

A. Species/critical habitat description

Northern Right Whale

The Northern Atlantic right whale is listed as endangered under the ESA, and has a population estimate of only around 300 individuals for the western North Atlantic (IWC 2001). Although the Northern right whale is known to prefer coastal areas, the areas around BT-9 and BT-11 do not provide suitable habitat for regular use by the whales. The areas are too shallow for the whales to inhabit regularly and no record exists of right whales having passed through the action area. In addition to the very low likelihood of occurrence, the actions to reduce adverse effects as detailed above would make an interaction with a right whale extremely unlikely. As a result, NOAA Fisheries feels that the Northern right whale is not likely to be adversely affected by these activities and it will not be evaluated further in this document.

Loggerhead Sea Turtle

The loggerhead sea turtle was listed as a threatened species in 1978. This species inhabits the continental shelves and estuarine environments along the margins of the Atlantic, Pacific, and Indian oceans, and within the continental United States it nests from Louisiana to Virginia. The major nesting areas include coastal islands of Georgia, South Carolina, and North Carolina, and the Atlantic and Gulf coasts of Florida, with the bulk of the nesting occurring on the Atlantic coast of Florida. Developmental habitat for small juveniles are the pelagic waters of the North Atlantic and the Mediterranean Sea.

There is no critical habitat designated for the loggerhead sea turtle.

Green Sea Turtle

Federal listing of the green sea turtle occurred on July 28, 1978, with all populations listed as threatened except for the Florida and Pacific coast of Mexico breeding populations which are endangered. The complete nesting range of the green turtle within the NOAA Fisheries Southeast Region includes sandy beaches of mainland shores, barrier islands, coral islands, and volcanic islands between Texas and North Carolina and at the U.S. Virgin Islands (U.S.V.I.) and Puerto Rico (NMFS and USFWS 1991a). Principal U.S. nesting areas for green turtles are in eastern Florida, predominantly Brevard through Broward counties (Ehrhart and Witherington 1992). Regular green turtle nesting also occurs on St Croix, U.S.V.I., and on Vieques, Culebra, Mona, and the main island of Puerto Rico (Mackay and Rebholz 1996, Diez pers. comm.).

Critical habitat for the green sea turtle has been designated for the waters surrounding Isla Culebra, Puerto Rico and its associated keys.

Kemp's Ridley Sea Turtle

The Kemp's ridley was listed as endangered on December 2, 1970. Internationally, the Kemp's ridley is considered the most endangered sea turtle (Zwienenberg 1977, Groombridge 1982). Kemp's ridleys nest in daytime aggregations known as arribadas, primarily at Rancho Nuevo, a stretch of beach in Mexico, Tamaulipas State. The species occurs mainly in coastal areas of the Gulf of Mexico and the northwestern Atlantic Ocean. Occasional individuals reach European waters (Brongersma 1972). Adults of this species are usually confined to the Gulf of Mexico, although adult-sized individuals sometimes are found on the Eastern Seaboard of the United States.

There is no designated critical habitat for the Kemp's ridley sea turtle.

Leatherback Sea Turtle

The leatherback was listed as endangered on June 2, 1970. Leatherbacks are widely distributed throughout the oceans of the world, and are found in waters of the Atlantic, Pacific, and Indian oceans; the Caribbean Sea; and the Gulf of Mexico (Ernst and Barbour 1972). Adult leatherbacks forage in temperate and subpolar regions from 71°N to 47°S latitude in all oceans and undergo extensive migrations between 90°N and 20°S, to and from the tropical nesting beaches. In the Atlantic Ocean, leatherbacks have been recorded as far north as Newfoundland, Canada, and Norway, and as far south as Uruguay, Argentina, and South Africa (see NMFS SEFSC 2001). Female leatherbacks nest from the southeastern United States to southern Brazil in the western Atlantic and from Mauritania to Angola in the eastern Atlantic. The most significant nesting beaches in the Atlantic, and perhaps in the world, are in French Guiana and Suriname (see NMFS SEFSC 2001).

Critical habitat for the leatherback includes the waters adjacent to Sandy Point, St. Croix, U.S.V.I.

B. Life history

Loggerhead Sea Turtle

Mating takes place in late March-early June, and eggs are laid throughout the summer, with a mean clutch size of 100-126 eggs in the southeastern United States. Individual females nest multiple times during a nesting season, with a mean of 4.1 nests/nesting individual (Murphy and Hopkins 1984). Nesting migrations for an individual female loggerhead are usually on an interval of 2-3 years, but can vary from 1-7 years (Dodd 1988). Loggerhead sea turtles originating from the western Atlantic nesting aggregations are believed to lead a pelagic existence in the North Atlantic Gyre for as long as 7-12 years or more, but there is some variation in habitat use by individuals at all life stages. Turtles in this life history stage are called “pelagic immatures.” Stranding records indicate that when pelagic immature loggerheads reach 40-60 cm straight-line carapace length they begin to recruit to coastal inshore and nearshore waters of the continental shelf throughout the U.S. Atlantic and Gulf of Mexico.

Benthic immature loggerheads, the life stage following the pelagic immature stage, have been found from Cape Cod, Massachusetts, to southern Texas, and occasionally strand on beaches in northeastern Mexico. Large benthic immature loggerheads (70-91 cm) represent a larger proportion of the strandings and in-water captures (Schroeder et al. 1998) along the south and western coasts of Florida as compared with the rest of the coast, which could indicate that the larger animals are either more abundant in these areas or just more abundant within the area relative to the smaller turtles. Benthic immature loggerheads foraging in northeastern U.S. waters are known to migrate southward in the fall as water temperatures cool (Epperly et al. 1995b, Keinath 1993, Morreale and Standora 1999, Shoop and Kenney 1992), and migrate northward in spring. Past literature gave an estimated age at maturity of 21-35 years (Frazer and Ehrhart 1985, Frazer et al. 1994) and the benthic immature stage as lasting at least 10-25 years. However, NMFS SEFSC (2001) reviewed the literature and constructed growth curves from new data, estimating ages of maturity ranging from 20-38 years and benthic immature stage lengths from 14-32 years.

Juveniles are omnivorous and forage on crabs, mollusks, jellyfish, and vegetation at or near the surface (Dodd 1988). Sub-adult and adult loggerheads are primarily coastal and typically prey on benthic invertebrates such as mollusks and decapod crustaceans in hard bottom habitats.

Green Sea Turtle

Green sea turtle mating occurs in the waters off the nesting beaches. Each female deposits 1-7 clutches (usually 2-3) during the breeding season at 12-14 day intervals. Mean clutch size is highly variable among populations, but averages 110-115. Females usually have 2-4 or more years between breeding seasons, while males may mate every year (Balazs 1983). After hatching, green sea turtles go through a post-hatchling pelagic stage where they are associated with drift lines of algae and other debris.

Green turtle foraging areas in the southeast United States include any neritic waters having macroalgae or sea grasses near mainland coastlines, islands, reefs, or shelves, and any open-ocean surface waters, especially where advection from wind and currents concentrates pelagic

organisms (Hirth 1997, NMFS and USFWS 1991). Principal benthic foraging areas in the region include Aransas Bay, Matagorda Bay, Laguna Madre, and the Gulf inlets of Texas (Doughty 1984, Hildebrand 1982, Shaver 1994), the Gulf of Mexico off Florida from Yankeetown to Tarpon Springs (Caldwell and Carr 1957, Carr 1984), Florida Bay and the Florida Keys (Schroeder and Foley 1995), the Indian River Lagoon System, Florida (Ehrhart 1983), and the Atlantic Ocean off Florida from Brevard through Broward counties (Wershoven and Wershoven 1992, Guseman and Ehrhart 1992). Adults of both sexes are presumed to migrate between nesting and foraging habitats along corridors adjacent to coastlines and reefs. Age at sexual maturity is estimated to be between 20 to 50 years (Balazs 1982, Frazer and Ehrhart 1985).

Green sea turtles are primarily herbivorous, feeding on algae and sea grasses, but also occasionally consume jellyfish and sponges. The post-hatchling, pelagic-stage individuals are assumed to be omnivorous, but little data are available.

Kemp's Ridley Sea Turtle

Remigration of females to the nesting beach varies from annually to every 4 years, with a mean of 2 years (TEWG 1998). Nesting occurs from April into July and is essentially limited to the beaches of the western Gulf of Mexico, near Rancho Nuevo in southern Tamaulipas, Mexico. The mean clutch size for Kemp's ridleys is 100 eggs/nest, with an average of 2.5 nests/female/season.

Juvenile/subadult Kemp's ridleys have been found along the Eastern Seaboard of the United States and in the Gulf of Mexico. Atlantic juveniles/subadults travel northward with vernal warming to feed in the productive, coastal waters of Georgia through New England, returning southward with the onset of winter to escape the cold (Lutcavage and Musick 1985, Henwood and Ogren 1987, Ogren 1989). In the Gulf, juvenile/subadult ridleys occupy shallow, coastal regions. Ogren (1989) suggested that in the northern Gulf they move offshore to deeper, warmer water during winter. Studies suggest that subadult Kemp's ridleys stay in shallow, warm, nearshore waters in the northern Gulf of Mexico until cooling waters force them offshore or south along the Florida coast (Renaud 1995). Little is known of the movements of the post-hatching, planktonic stage within the Gulf. Studies have shown the post-hatchling pelagic stage varies from 1-4 or more years, and the benthic immature stage lasts 7-9 years (Schmid and Witzell 1997). The TEWG (1998) estimates age at maturity to range from 7-15 years.

Stomach contents of Kemp's ridleys along the lower Texas coast consisted of a predominance of nearshore crabs and mollusks, as well as fish, shrimp and other foods considered to be shrimp fishery discards (Shaver 1991). Pelagic stage, neonatal Kemp's ridleys presumably feed on the available sargassum and associated infauna or other epipelagic species found in the Gulf of Mexico.

Leatherback Sea Turtle

Female leatherbacks nest from the southeastern United States to southern Brazil in the western Atlantic and from Mauritania to Angola in the eastern Atlantic, with nesting occurring as early as late February or March. When they leave the nesting beaches, leatherbacks move offshore but eventually utilize both coastal and pelagic waters. Very little is known about the pelagic habits of the hatchlings and juveniles, and they have not been documented to be associated with the

sargassum areas as are other species. Leatherbacks are deep divers, with recorded dives to depths in excess of 1,000 m (Eckert et al. 1989), but they may come into shallow waters if there is an abundance of jellyfish nearshore.

Although leatherbacks are a long-lived species (> 30 years), they are somewhat faster to mature than loggerheads. Leatherbacks have an estimated age at sexual maturity reported of about 13-14 years for females, with 9 years reported as a likely minimum (Zug 1996) and 19 years as a likely maximum (NMFS SEFSC 2001). They nest frequently (up to 7 nests per year) during a nesting season and nest about every 2-3 years. During each nesting, they produce 100 eggs or more in each clutch and, thus, can produce 700 eggs or more per nesting season (Schultz 1975).

Leatherback sea turtles feed primarily on jellyfish as well as cnidarians and tunicates. They are also the most pelagic of the turtles, but have been known to enter coastal waters on a seasonal basis to feed in areas where jellyfish are concentrated.

C. Population dynamics, status, and distribution

Loggerhead Sea Turtle

Loggerhead sea turtles occur throughout the temperate and tropical regions of the Atlantic, Pacific, and Indian oceans and are the most abundant species of sea turtle occurring in U.S. waters. Loggerhead sea turtles concentrate their nesting in the north and south temperate zones and subtropics, but generally avoid nesting in tropical areas of Central America, northern South America, and the Old World (Magnuson et al. 1990).

In the western Atlantic, most loggerhead sea turtles nest from North Carolina to Florida and along the Gulf coast of Florida. There are 5 western Atlantic subpopulations, divided geographically as follows: (1) a northern nesting subpopulation, occurring from North Carolina to northeast Florida at about 29° N (approximately 7,500 nests in 1998); (2) a south Florida nesting subpopulation, occurring from 29° N on the east coast to Sarasota on the west coast (approximately 83,400 nests in 1998); (3) a Florida Panhandle nesting subpopulation, occurring at Eglin Air Force Base and the beaches near Panama City, Florida (approximately 1,200 nests in 1998); (4) a Yucatán nesting subpopulation, occurring on the eastern Yucatán Peninsula, Mexico (Márquez 1990) (approximately 1,000 nests in 1998) (TEWG 2000); and (5) a Dry Tortugas nesting subpopulation, occurring in the islands of the Dry Tortugas, near Key West, Florida (approximately 200 nests per year) (NMFS SEFSC 2001). Natal homing of females to the nesting beach provides the barrier between these subpopulations, preventing recolonization with turtles from other nesting beaches.

Based on the data available, it is difficult to estimate the size of the loggerhead sea turtle population in the United States or its territorial waters. There is, however, general agreement that the number of nesting females provides a useful index of the species' population size and stability at this life stage. Nesting data collected on index nesting beaches in the United States from 1989-1998 represent the best data set available to index the population size of loggerhead sea turtles. However, an important caveat for population trends analysis based on nesting beach data is that this may reflect trends in adult nesting females but not reflect overall population growth rates. Given this caveat, between 1989 and 1998, the total number of nests laid along the U.S. Atlantic and Gulf coasts ranged from 53,014 to 92,182 annually, with a mean

of 73,751. On average, 90.7% of these nests were from the south Florida subpopulation, 8.5% were from the northern subpopulation, and 0.8% were from the Florida Panhandle nest sites. There is limited nesting throughout the Gulf of Mexico west of Florida, but it is not known to which subpopulation the turtles making these nests belong.

The number of nests in the northern subpopulation from 1989 to 1998 was 4,370 to 7,887, with a 10-year mean of 6,247 nests. With each female producing an average of 4.1 nests in a nesting season, the average number of nesting females per year in the northern subpopulation was 1,524. The total nesting and non-nesting adult female population is estimated as 3,810 adult females in the northern subpopulation (TEWG 1998, 2000). The northern population, based on number of nests, has been classified as stable or declining (TEWG 2000). Another consideration adding to the vulnerability of the northern subpopulation is that NOAA Fisheries scientists estimate that the northern subpopulation produces 65% males, while the south Florida subpopulation is estimated to produce 80% females (NMFS SEFSC 2001).

The southeastern U.S. nesting aggregation is of great importance on a global scale and is second in size only to the nesting aggregation on islands in the Arabian Sea off Oman (Ross 1979, Ehrhart 1989, NMFS and USFWS 1991b). The global importance of the southeast U.S. nesting aggregation is especially important because the status of the Oman colony has not been evaluated recently, but it is located in an area of the world where it is highly vulnerable to disruptive events such as political upheavals, wars, catastrophic oil spills, and lack of strong protections (Meylan et al. 1995).

Ongoing threats to the western Atlantic populations include incidental takes from dredging, commercial trawling, longline fisheries, and gillnet fisheries; loss or degradation of nesting habitat from coastal development and beach armoring; disorientation of hatchlings by beachfront lighting; nest predation by native and non-native predators; degradation of foraging habitat; marine pollution and debris; watercraft strikes; and disease.

Green Sea Turtle

The vast majority of green turtle nesting within the southeast United States occurs in Florida. In Florida from 1989-1999, green turtle abundance from nest counts ranges 109-1,389 nesting females per year (Meylan et al. 1995 and Florida Marine Research Institute Statewide Nesting 2001 Database, unpublished data; estimates assume 4 nests per female per year, Johnson and Ehrhart 1994). High biennial variation and a predominant 2-year re-migration interval (Witherington and Ehrhart 1989, Johnson and Ehrhart 1994) warrant combining even and odd years into 2-year cohorts. This gives an estimate of total nesting females that ranges 705-1,509 during the period 1990-1999. It is important to note that because methodological limitations make the clutch frequency number (4 nests/female/year) an underestimate (by as great as 50%), a more conservative estimate is 470-1,509 nesting females in Florida between 1990 and 1999. In Florida during the period 1989-1999, numbers of green turtle nests by year show no trend. However, odd-even year cohorts of nests do show a significant increase during the period 1990-1999 (Florida Marine Research Institute, 2001 Index Nesting Beach Survey Database).

It is unclear how greatly green turtle nesting in the whole of Florida has been reduced from historical levels (Dodd 1981), although one account indicates that nesting in Florida's Dry Tortugas may now be only a small fraction of what it once was (Audubon 1926). Total nest counts and trends at index beach sites during the past decade suggest that green turtles that

nest within the southeast United States are recovering and have only recently reached a level of approximately 1,000 nesting females. There are no reliable estimates of the number of green turtles inhabiting foraging areas within the southeast United States, and it is likely that green turtles foraging in the region come from multiple genetic stocks. These trends are also uncertain because of a lack of data. However, there is one sampling area in the region with a large time series of constant turtle-capture effort that may represent trends for a limited area within the region. This sampling area is at an intake canal for a power plant on the Atlantic coast of Florida where 2,578 green turtles have been captured during the period 1977-1999 (FPL 2000). At the power plant, the annual number of immature green turtle captures (minimum straight-line carapace length < 85 cm) has increased significantly during the 23-year period.

Status of immature green turtles foraging in the southeast United States might also be assessed from trends at nesting beaches where many of the turtles originated, principally, Florida, Yucatán, and Tortuguero. Trends at Florida beaches are presented above. Trends in nesting at Yucatán beaches cannot be assessed because of irregularity in beach survey methods over time. Trends at Tortuguero (ca. 20,000-50,000 nests/year) show a significant increase in nesting during the period 1971-1996 (Bjorndal et al. 1999).

The principal cause of past declines and extirpations of green turtle assemblages has been the over-exploitation of green turtles for food and other products. Although intentional take of green turtles and their eggs is not extensive within the southeast United States, green turtles that nest and forage in the region may spend large portions of their life history outside the region and outside United States jurisdiction, where exploitation is still a threat. Adult green turtles and immatures are exploited heavily on foraging grounds off Nicaragua and to a lesser extent off Colombia, Mexico, Panama, Venezuela, and the Tortuguero nesting beach (Carr et al. 1978, Nietschmann 1982, Bass et al. 1998, Lagueux 1998).

There are significant and ongoing threats to green turtles from human-related causes. Threats to nesting beaches in the region include beach armoring, erosion control, artificial lighting, and disturbance, which can be expected to increase with time. Pollution is known to have both direct (ingestion of foreign materials such as tar balls and plastics) and indirect (degradation of foraging grounds) impacts on green sea turtles. Foraging habitat loss also occurs as a result of direct destruction by dredging, siltation, boat damage, and other human activities. Green turtles are often captured and occasionally killed by interactions with fishing gear. Collisions with power boats and encounters with suction dredges have killed green turtles along the U.S. coast and may be common elsewhere where boating and dredging activities are frequent (Florida Marine Research Institute, Sea Turtle Stranding and Salvage Network Database). Threats from increasing incidences of disease, which may or may not have some relation to human influences, are also a concern. The occurrence of green turtle fibropapillomatosis disease was originally reported in the 1930s, when it was thought to be rare (Smith and Coates 1938). Presently, this disease is cosmopolitan and has been found to affect large numbers of animals in some areas, including Hawaii and Florida (Herbst 1994, Jacobson 1990, Jacobson et al. 1991).

Kemp's Ridley Sea Turtle

L. kempii has a very restricted distribution relative to the other sea turtle species. Data suggests that adult Kemp's ridley turtles are restricted somewhat to the Gulf of Mexico in shallow near shore waters, and benthic immature turtles of 20-60 cm straight line carapace length are found in nearshore coastal waters including estuaries of the Gulf of Mexico and the Atlantic, although

adult-sized individuals sometimes are found on the Eastern Seaboard of the United States. The post-pelagic stages are commonly found dwelling over crab-rich sandy or muddy bottoms. Juveniles frequent bays, coastal lagoons, and river mouths.

Of the seven extant species of sea turtles in the world, the Kemp's ridley has declined to the lowest population level. Most of the population of adult females nest on the Rancho Nuevo beaches (Pritchard 1969). When nesting aggregations at Rancho Nuevo were discovered in 1947, adult female populations were estimated to be in excess of 40,000 individuals (Hildebrand 1963). By the early 1970s, the world population estimate of mature female Kemp's ridleys had been reduced to 2,500-5,000 individuals. The population declined further through the mid-1980s. Recent observations of increased nesting suggest that the decline in the ridley population has stopped and the population is now increasing.

The TEWG (1998) identified three population trends in benthic immature ridleys. Benthic immatures are not yet reproductively mature but have recruited to feed in the nearshore benthic environment, where they are exposed to nearshore mortality sources that often result in strandings. Increased production of hatchlings from the nesting beach beginning in 1966 resulted in an increase in benthic ridleys that leveled off in the late 1970s. A second period of increase followed by leveling occurred between 1978 and 1989 as hatchling production was further enhanced by the cooperative program between the U.S. Fish and Wildlife Service and Mexico's Instituto Nacional de Pesca to increase the nest protection and relocation program in 1978. A third period of steady increase, which has not leveled off to date, has occurred since 1990 and appears to be due to the greatly increased hatchling production and an apparent increase in survival rates of immature turtles beginning in 1990, due in part to the introduction of turtle excluder devices (TEDs) in the U.S. and Mexican shrimping fleets. Adult ridley numbers have now grown, as shown in nesting increases at the main nesting sites in Mexico. Nesting at Tamaulipas and Veracruz increased from a low of 702 nests in 1985, to 1,930 nests in 1995, to 6,277 nests in 2000 (USFWS 2000). The population model used by the TEWG (1998) projected that Kemp's ridleys could reach the intermediate recovery goal identified in the Recovery Plan, of 10,000 nesters by the year 2020 if the assumptions of age to sexual maturity and age specific survivorship rates used in their model are correct.

The largest contributor to the decline of the ridley in the past was commercial and local exploitation, especially poaching of nests at the Rancho Nuevo site, as well as the Gulf of Mexico trawl fisheries. The advent of TED regulations for trawlers and protections for the nesting beaches have allowed the species to begin to rebound. Many threats to the future of the species remain, including interactions with fishery gear, marine pollution, foraging habitat destruction, illegal poaching of nests and potential threats to the nesting beaches from such sources as global climate change, development, and tourism pressures.

Leatherback Sea Turtle

Leatherbacks are widely distributed throughout the oceans of the world, and are found in waters of the Atlantic, Pacific, Caribbean, and the Gulf of Mexico (Ernst and Barbour 1972). The leatherback is the largest living turtle and it ranges farther than any other sea turtle species, exhibiting broad thermal tolerances (NMFS and USFWS 1995). Genetic analyses of leatherbacks to date indicate that within the Atlantic basin significant genetic differences occur among St. Croix (U.S. Virgin Islands), and mainland Caribbean populations (Florida, Costa Rica, Suriname/French Guiana) and between Trinidad and the mainland Caribbean populations

(Dutton et al. 1999) leading to the conclusion that there are at least three separate subpopulations of leatherbacks in the Atlantic.

Nest counts are the only reliable population information available for leatherback turtles. Recent declines have been seen in the number of leatherbacks nesting worldwide (NMFS and USFWS 1995). A population estimate of 34,500 females (26,200-42,900) was made by Spotila et al. (1996), who stated that the species as a whole was declining and local populations were in danger of extinction. Historically, it was due primarily to intense exploitation of the eggs (Ross 1979) but adult mortality has increased significantly from interactions with fishery gear (Spotila et al. 1996). The Pacific population is in a critical state of decline, now estimated to number less than 3,000 total adult and subadult animals (Spotila et al. 2000). The status of the Atlantic population is less clear. In 1996, it was reported to be stable, at best (Spotila et al. 1996), but numbers in the western Atlantic at that time were reported to be on the order of 18,800 nesting females. According to Spotila (pers. comm.), the western Atlantic population currently numbers about 15,000 nesting females, whereas current estimates for the Caribbean (4,000) and the eastern Atlantic, off Africa, (numbering ca. 4,700) have remained consistent with numbers reported by Spotila et al. in 1996.

The nesting aggregation in French Guiana has been declining at about 15% per year since 1987. From 1979-1986, the number of nests was increasing at about 15% annually. The number of nests in Florida and the U.S. Caribbean has been increasing at about 10.3% and 7.5%, respectively, per year since the early 1980s but the magnitude of nesting is much smaller than that along the French Guiana coast (see NMFS SEFSC 2001). In summary, the conflicting information regarding the status of Atlantic leatherbacks makes it difficult to conclude whether or not the population is currently in decline. Numbers at some nesting sites are up, while at others they are down.

Zug (1996) pointed out that the combination of the loss of long-lived adults in fishery-related mortality (especially entanglement in gear and drowning in trawls), and the lack of recruitment stemming from elimination of annual influxes of hatchlings because of intense egg harvesting, has caused the sharp decline in leatherback populations. Other important ongoing threats to the population include pollution, loss of nesting habitat, and boat strikes.

D. Analysis of the species/critical habitat likely to be affected

Of the above listed species occurring in the action area, NOAA Fisheries believes that Kemp's ridley, loggerhead, green, and leatherback sea turtles are likely to be adversely affected by the proposed action, but no critical habitat for any species will be impacted. These four species are known to occur in the action area and the likelihood of them being impacted by the activities in the action area is not discountable. Hawksbill sea turtles and shortnose sturgeon may be affected, but are very rare, or undocumented, in the vicinity of the action area, and therefore they are not likely to be adversely affected. With the exception of the right whale, the listed whale species mentioned above do not occur in the shallow, nearshore waters of Pamlico Sound, and therefore the project will have no effect on these species. The right whale is known to utilize nearshore waters and has been documented in Pamlico Sound on rare occasions. The waters in the action area, however, are very shallow, and no valuable right whale habitat is present. The actions, detailed previously, to reduce adverse effects, and the low likelihood of a right whale occurring in the action area, leads NOAA Fisheries to conclude that the project may affect, but is not likely to adversely affect, the right whale.

III. Environmental Baseline

This section contains an analysis of the effects of past and ongoing human and natural factors leading to the current status of the species, its habitat, and ecosystem, within the action area. The environmental baseline is a snapshot of a species' health at a specified point in time and includes state, tribal, local, and private actions already affecting the species, or that will occur contemporaneously with the consultation in progress. Unrelated Federal actions affecting the same species or critical habitat that have completed formal or informal consultation are also part of the environmental baseline, as are Federal and other actions within the action area that may benefit listed species or critical habitat.

The environmental baseline for this Opinion includes the effects of several activities that affect the survival and recovery of threatened and endangered species in the action area. The activities that shape the environmental baseline in the action area of this consultation are primarily fisheries and recovery activities associated with reducing fisheries impacts. Other environmental impacts include effects of discharges, dredging, military activities, and industrial cooling water intake.

A. Status of the species within the action area

The four species of sea turtles that occur in the action area are all highly migratory. NOAA Fisheries believes that no individual members of any of the species are likely to be year-round residents of the action area. Individual animals will make migrations into nearshore waters as well as other areas of the North Atlantic Ocean, Gulf of Mexico, and the Caribbean Sea. Therefore, the range-wide status of the four species of sea turtles, given in Section II above, most accurately reflects the species' status within the action area.

The loggerhead sea turtles in the action area are likely to represent differing proportions of the five western North Atlantic subpopulations, as well as unidentified subpopulations from the eastern Atlantic. This Opinion considers these subpopulations for the analysis, with particular emphasis on the northern subpopulation of loggerhead sea turtles. Although the northern subpopulation produces about 9% of the loggerhead nests, it comprises more of the loggerhead sea turtles found in foraging areas from the northeastern United States to Georgia. Between 24% and 46% of the loggerhead sea turtles in that area are from the northern subpopulation (NMFS SEFSC 2001, Bass et al. 1998, Norrgard 1995, Rankin-Baransky 1997, Sears 1994, Sears et al. 1995).

B. Factors affecting species environment within the action area.

As explained above, sea turtles found in the action area are not year-round residents of the area, and may travel widely throughout the Atlantic, Gulf of Mexico, and Caribbean Sea. Therefore, individuals found in the action area (Pamlico Sound) can potentially be affected by activities anywhere else within this wide range.

Federal Actions

In recent years, NOAA Fisheries has undertaken several ESA section 7 consultations to address the effects of federally-permitted fisheries and other Federal actions on threatened and

endangered species. Each of those consultations sought to develop ways of reducing the probability of adverse effects of the action on sea turtles. Similarly, recovery actions NOAA Fisheries has undertaken under the ESA are addressing the problem of take of sea turtles in the fishing and shipping industries. The following summary of anticipated sources of incidental take of turtles includes only those Federal actions which have undergone formal section 7 consultation.

Potential adverse effects from Federal vessel operations in the action area and throughout the range of sea turtles include operations of the Navy (USN) and Coast Guard (USCG), the Environmental Protection Agency, the National Oceanic and Atmospheric Administration (NOAA), and the Army Corps of Engineers (COE). NOAA Fisheries has conducted formal consultations with the USCG, the USN, and NOAA on their vessel operations. Through the section 7 process, where applicable, NOAA Fisheries has and will continue to establish conservation measures for all these agency vessel operations to avoid or minimize adverse effects to listed species. At the present time, however, they represent potential for some level of interaction.

In addition to vessel operations, other military activities including training exercises and ordnance detonation also affect sea turtles. Consultations on individual activities have been completed, but no formal consultation on overall USCG or USN activities in any region has been completed at this time.

The construction and maintenance of Federal navigation channels has also been identified as a source of turtle mortality. Hopper dredges move relatively rapidly (compared to sea turtle swimming speeds) and can entrain and kill sea turtles, presumably as the drag arm of the moving dredge overtakes the slower moving turtle. A regional biological opinion (RBO) with the COE has been completed for the southeast Atlantic waters and the Gulf of Mexico. Consultation on a new RBO for the COE's Gulf of Mexico hopper dredging operations is currently underway.

The COE and Minerals Management Service (MMS) (the latter is non-military) oil and gas exploration, well development, production, and abandonment/rig removal activities also adversely affect sea turtles. Both of these agencies have consulted with NOAA Fisheries on these types of activities.

Adverse effects on threatened and endangered species from several types of fishing gear occur in the action area. Efforts to reduce the adverse effects of commercial fisheries are addressed through the ESA section 7 process. Gillnet, longline, trawl gear, and pot fisheries have all been documented as interacting with sea turtles. For all fisheries for which there is a Federal fishery management plan (FMP) or for which any Federal action is taken to manage that fishery, impacts have been evaluated under section 7. Several formal consultations have been conducted on the following fisheries that NOAA Fisheries has determined are likely to adversely affect threatened and endangered species: American lobster, monkfish, dogfish, southeastern shrimp trawl fishery, northeast multispecies, Atlantic pelagic swordfish/tuna/shark, and summer flounder/scup/black sea bass fisheries.

On June 14, 2001, NOAA Fisheries issued a jeopardy opinion for the Highly Migratory Species (HMS) fisheries off the eastern United States. The HMS Opinion found that the continued prosecution of the pelagic longline fishery in the manner described in the HMS FMP was likely to

jeopardize the continued existence of loggerhead and leatherback sea turtles. This determination was made by analyzing the effects of the fishery on sea turtles in conjunction with the environmental baseline and cumulative effects. The environmental baseline section of the HMS opinion is incorporated herein by reference and can be found at the following NOAA Fisheries website:

http://www.nmfs.noaa.gov/prot_res/readingrm/ESAsec7/HMS060801final.pdf

The environmental baseline for the June 14, 2001, HMS Opinion also considered the impacts from the North Carolina offshore spring monkfish gillnet fishery and the inshore fall southern flounder gillnet fishery, both of which were responsible for large numbers of sea turtle mortalities in 1999 and 2000, especially loggerhead sea turtles. However, during the 2001 season NOAA Fisheries implemented an observer program that observed 100 % of the effort in the monkfish fishery, and then in 2002 a rule was enacted creating a seasonal monkfish gillnet closure along the Atlantic coast based upon sea surface temperature data and turtle migration patterns. In 2001 NOAA Fisheries also issued an ESA section 10 permit with mitigative measures for the southern flounder fishery. Subsequently the sea turtle mortalities in these fisheries were drastically reduced. The reduction of turtle mortalities in these fisheries reduces the negative effects these fisheries have on the environmental baseline.

NOAA Fisheries has implemented a reasonable and prudent alternative (RPA) in the HMS fishery which would allow the continuation of the pelagic longline fishery without jeopardizing the continued existence of loggerhead and leatherback sea turtles. The provisions of this RPA include the closure of the Grand Banks region off the northeast United States and gear restrictions that are expected to reduce the by-catch of loggerheads by as much as 76 % and leatherbacks by as much as 65 %. Further, NOAA Fisheries is implementing a major research project to develop measures aimed at further reducing longline by-catch. The implementation of this RPA reduces the negative effects that the HMS fishery has on the environmental baseline. The conclusions of the June 14, 2001, HMS Opinion and the subsequent implementation of the RPA are hereby incorporated into the environmental baseline section of this Opinion.

Another action with Federal oversight which has impacts on sea turtles is the operation of electrical generating plants. Sea turtles entering coastal or inshore areas have been affected by entrainment in the cooling-water systems of electrical generating plants. Biological opinions have already been written for a number of electrical generating plants, and others are currently undergoing section 7 consultation.

State or Private Actions

Commercial traffic and recreational pursuits can have an adverse effect on sea turtles through propeller and boat strike damage. Private vessels participate in high speed marine events concentrated in the southeastern United States and are a particular threat to sea turtles, and occasionally to marine mammals as well. The magnitude of these marine events is not currently known. NOAA Fisheries and the USCG are in early consultation on these events, but a thorough analysis has not been completed.

Various fishing methods used in state fisheries, including trawling, pot fisheries, fly nets, and gillnets are known to cause interactions with sea turtles. Georgia and South Carolina prohibit gillnets for all but the shad fishery. Florida has banned all but very small nets in state waters, as

has Texas. Louisiana, Mississippi, and Alabama have also placed restrictions on gillnet fisheries within state waters such that very little commercial gillnetting takes place in southeast waters, with the exception of North Carolina. Most pot fisheries in the Southeast are prosecuted in areas frequented by sea turtles.

Strandings in the North Carolina area represent, at best, 7%-13% of the actual nearshore mortality (Epperly et al. 1996). Studies by Bass et al. (1998), Norrgard (1995), and Rankin-Baransky (1997) indicate that the percentage of northern loggerheads in this area is highly over-represented in the strandings when compared to the approximately 9% representation from this subpopulation in the overall U.S. sea turtle nesting populations. Specifically, the genetic composition of sea turtles in this area is 25%-54% from the northern subpopulation, 46%-64% from the South Florida subpopulation, and 3%-16% from the Yucatán subpopulation. The cumulative removal of these turtles on an annual basis would severely impact the recovery of this species.

Other Potential Sources of Impacts in the Environmental Baseline

A number of activities that may indirectly affect listed species include discharges from wastewater systems, dredging, ocean dumping and disposal, and aquaculture. The impacts from these activities are difficult to measure. Where possible, however, conservation actions are being implemented to monitor or study impacts from these elusive sources.

NOAA Fisheries and the USN have been working cooperatively to establish a policy for monitoring and managing acoustic impacts from anthropogenic sound sources in the marine environment. Acoustic impacts can include temporary or permanent injury, habitat exclusion, habituation, and disruption of other normal behavior patterns.

Conservation and Recovery Actions Shaping the Environmental Baseline

NOAA Fisheries implemented a series of regulations aimed at reducing potential for incidental mortality of sea turtles in commercial fisheries. In particular, NOAA Fisheries has required the use of TEDs in southeast U.S. shrimp trawls since 1989 and in summer flounder trawls in the mid-Atlantic area (south of Cape Charles, Virginia) since 1992. It has been estimated that TEDs exclude 97% of the turtles caught in such trawls. These regulations have been refined over the years to ensure that TED effectiveness is maximized through proper placement and installation, configuration (e.g., width of bar spacing), floatation, and more widespread use. Recent analyses by Epperly and Teas (1999) indicate that the minimum requirements for the escape opening dimensions are too small, and that as many as 47% of the loggerheads stranding annually along the Atlantic seaboard and Gulf of Mexico were too large to fit through existing openings. On October 2, 2001, NOAA Fisheries published a proposed rule to require larger escape openings in TEDs and is planning to publish a final rule in 2002.

In 1993 (with a final rule implemented 1995), NOAA Fisheries established a Leatherback Conservation Zone to restrict shrimp trawl activities from the coast of Cape Canaveral, Florida, to the North Carolina/Virginia border. This provides for short-term closures when high concentrations of normally pelagic-distributed leatherbacks are recorded in more coastal waters where the shrimp fleet operates. This measure is necessary because, due to their size, adult leatherbacks are larger than the escape openings of most NOAA Fisheries-approved TEDs.

NOAA Fisheries is also working to develop a TED which can be effectively used in a type of

trawl known as a fly net, which is sometimes used in the mid-Atlantic and northeast fisheries to target sciaenids and bluefish. Limited observer data indicate that takes can be quite high in this fishery. A prototype design has been developed, but testing under commercial conditions is still necessary.

In addition, NOAA Fisheries has been active in public outreach efforts to educate fishermen regarding sea turtle handling and resuscitation techniques. As well as making this information widely available to all fishermen, NOAA Fisheries recently conducted a number of workshops with longline fishermen to discuss bycatch issues including protected species, and to educate them regarding handling and release guidelines. NOAA Fisheries intends to continue these outreach efforts and hopes to reach all fishermen participating in the pelagic longline fishery over the next one to two years. There is also an extensive network of Sea Turtle Stranding and Salvage Network participants along the Atlantic and Gulf of Mexico which not only collects data on dead sea turtles, but also rescues and rehabilitates any live stranded turtles.

Efforts to enhance water quality has been enacted in North Carolina. The Clean Water Responsibility and Environmentally Sound Policy Act, signed by North Carolina's governor on August 26, 1997, puts a moratorium on hog farms, requires comprehensive planning across the state to ensure clean water, gives counties the right to zone large hog farms, and restricts where hog farms can be built. The new law also tightens limits on the amount of nitrogen that cities and industries can discharge into nutrient sensitive waters, requires additional storm water controls, and authorizes studies of water pollution. There is also the Lower Cape Fear River Program which is a collaboration among academia, government, industry, and the public. This is a large-scale water quality assessment program covering estuaries and a large portion of the lower watershed.

IV. Effects of the Action

A. Factors considered and analyses for effects of the action

- **Sediment disturbance** could potentially impact listed species by disturbing individuals and/or their prey, reducing water quality, and reducing habitat quality through siltation. Sediments in the action area are primarily hard or firmly packed sands, which experience only minimal disturbance and quick settlement. The MCAS performed turbidity testing in 1991 shortly following a bombing exercise and found turbidity to remain far below the state water quality requirement of 25 NTU. Sediment disturbance is not expected to affect listed species for this project.

- **Lighting effects** from the project are expected to be minimal. There are no nesting beaches in the vicinity of the action area. Flares are utilized during the training operations but illumination is brief and occurs at high altitudes.

- **Debris ingestion and entanglement** is an ongoing threat to sea turtles and marine mammals. Debris from the operations include parachutes from flares, chaff strands from flares, and wires from TOW missiles. None of the above item types have been documented to be ingested by sea turtles or marine mammals. The flare parachutes are made for one-time use, and according to MCAS observations do not persist long in the environment. Chaff strands are too fine to block the digestive tract, and are non-toxic. NOAA Fisheries has evaluated the potential for harm as a result of incidental ingestion of chaff by sea turtles. Based upon information provided in the BA

and consultation with veterinary scientists, NOAA Fisheries has concluded that there is not a significant or measurable likelihood of harm as a result of chaff fibers which fall into the waters during training exercises, nor from other debris (flare parachutes, etc.) that are left in the water following each exercise.

- **Airborne emissions** from the project are not expected to have an impact on listed species. Airborne emission modeling was performed for a much larger project (the DDG-81 Winston S. Churchill ship shock trials) which involved predicting emissions from a 10,000-lb charge. Based upon various health and safety standards, the models predicted that there would be no risk to humans or marine life in the test area from the Churchill testing using a total of 40,000 lbs of charges. The project evaluated in this Opinion will use much smaller quantities of charges, and airborne emissions are not anticipated to affect any marine species.

- **Waterborne emissions** are not expected to have an impact on listed species. The State of North Carolina, Department of Environment and Natural Resources expressed concern in the past about the possible effects of the actions on water quality. A water quality sampling plan was enacted for pH, conductivity, turbidity, temperature, dissolved oxygen, nine soluble metals (copper, zinc, iron, aluminum, chromium, magnesium, nickel, lead, and silver), sulfate, sulfide, ammonia, and volatile and semi-volatile organics. Sediment sampling was performed at BT-11 only because BT-9 has the potential of encountering unexploded ordnance in the sediments. All tested parameters were within the limits set by North Carolina Water Quality Standards for Saltwater Classification (for those parameters with standards).

- **Target establishment/maintenance** occurs infrequently. MCAS personnel are required to ensure that new targets are free of environmental contaminants prior to placing them in the water for use. There is little potential for these activities to impact listed species.

- **Boat operations** have the potential to impact sea turtles or marine mammals by striking the animal. MCAS manned boats have no greater chance of striking an animal than does a recreational boat, and remote controlled boats follow a fairly limited path that does not pass through any habitat that would be especially likely to concentrate or attract animals. Although the likelihood is small, the frequency of MCAS boat traffic through the area does create a situation where a sea turtle can potentially be struck. NOAA Fisheries, therefore, determined that up to one turtle of any species may be struck within a 10-year period by MCAS boats.

- **Direct hits by ordnance** are another potential source of take occurring as a result of the MCAS training activities. Modeling was done for the ranges to determine the total surface area needed to contain 99.99% of initial and ricochet impacts (95% confidence interval) for each aircraft and ordnance type. The impact area data was used in conjunction with seasonal maximum sea turtle density data for the area from Epperly et al. (1995a and 1995b), shell surface area averages for the turtles, and ordnance drop data to determine that over a 10-year period ordnance direct impacts could account for 0.206 turtles at BT-9 and 0.167 at BT-11. A detailed explanation of the method used to determine these numbers can be found in the MCAS BA for this project. Based on the above calculations and rounding up to a whole turtle, NOAA Fisheries determined that up to a total of one turtle of any species may be impacted by direct hit from ordnance over a 10-year period.

- **Concussive effects from live ordnance explosions** can range from brief acoustic and tactile effects leading to physical discomfort, to lethal and non-lethal injuries. Non-lethal injuries include slight, recoverable injury to internal organs and/or the auditory system. Lethal injuries would

result from massive trauma as a result of close proximity to a detonation. A very detailed explanation of the modeling performed to determine the expected impacts to marine mammals can be found in the BA for this project. Information about impacts to the auditory system causing temporary threshold shifts (TTS) are based upon studies of marine mammals because of the lack of sea turtle data on that subject. Sea turtles are, however, generally accepted to be much less susceptible to auditory damage than marine mammals, and therefore the models may be very conservative and overestimate the impact to sea turtles. The models used data on sea turtle densities, impact area and intensity of the explosives, and frequency of ordnance delivery to determine that up to 3 turtles could die from extensive lung hemorrhage, up to 1 could suffer slight (recoverable) lung injury, and no more than 21 should experience disruption of hearing-based behaviors as a result of TTS. NOAA Fisheries has reviewed and accepted the expected impacts determined by the model.

B. Species' response to the proposed action

The proposed action is not expected to have a significant effect on any of the sea turtle species. Of the total expected take, the vast majority (21) are temporary in the form of disruption of hearing-based behaviors/disorientation from TTS, and one is from recoverable, slight lung injury. There is no year-round population in the action area, and therefore any impacts will be spread out amongst the population as a whole. The action area is not known to be a breeding or nesting area, and therefore disturbances are not likely to result in a reduction of reproduction. No critical habitat for any species will be impacted.

V. Cumulative Effects

Cumulative effects are the effects of future state, local, or private activities that are reasonably certain to occur within the action area or within the range of sea turtles. Federal actions that are unrelated to the proposed action are not considered in this section because they require separate consultation pursuant to section 7 of the ESA.

Within the action area, major future changes are not anticipated in the ongoing human activities described in the environmental baseline. The present, major human uses of the action area are expected to continue at the present levels of intensity in the near future. Listed species of turtles, however, migrate throughout the Atlantic Ocean and Gulf of Mexico and may be affected during their life cycles by non-Federal activities outside the action area.

Beachfront development, lighting, and beach erosion control all are ongoing activities along the Atlantic and Gulf coasts. These activities potentially reduce or degrade sea turtle nesting habitats or interfere with hatchling movement to sea. Nocturnal human activities along nesting beaches may also discourage sea turtles from nesting sites. The extent to which these activities reduce sea turtle nesting and hatchling production is unknown. However, as conservation awareness spreads, more and more coastal cities and counties are adopting more stringent measures to protect hatchling sea turtles from the disorienting effects of beach lighting.

State-regulated commercial and recreational fishing activities in Atlantic Ocean and Gulf of Mexico waters currently result in the incidental take of threatened and endangered species. It is expected that states will continue to license/permit large vessel and thrill-craft operations which do not fall under the purview of a Federal agency, and issue regulations that will affect fishery activities. Any increase in recreational vessel activity in inshore and offshore waters of the Gulf

of Mexico and Atlantic Ocean will likely increase the number of turtles taken by injury or mortality in vessel collisions. Recreational hook-and-line fisheries have been known to lethally take sea turtles. Future cooperation between NOAA Fisheries and the states on these issues should help decrease take of sea turtles caused by recreational activities. NOAA Fisheries will continue to work with coastal states to develop and refine ESA section 6 agreements and section 10 permits to enhance programs to quantify and mitigate these takes.

VI. Conclusion

After reviewing the current status of the endangered green, leatherback, and Kemp's ridley sea turtles, and the threatened loggerhead sea turtle in the action area, the environmental baseline, the effects of the proposed action, and the cumulative effects, it is NOAA Fisheries' biological opinion that the proposed action is not likely to jeopardize the continued existence of the endangered green turtle, leatherback turtle, Kemp's ridley turtle, nor the threatened loggerhead turtle. No critical habitat has been designated for these species in the action area; therefore, none will be affected.

Incidental Take Statement

Section 9 of the ESA and Federal regulations pursuant to section 4(d) of the ESA prohibit the take of endangered and threatened species, respectively, without special exemption. Take is defined as to harass, harm, pursue, hunt, shoot, wound, kill, trap, capture, collect, or to attempt to engage in any such conduct. Incidental take is defined as take that is incidental to, and not the purpose of, the carrying out of an otherwise lawful activity. Under the terms of section 7(b)(4) and section 7(o)(2), taking that is incidental to and not intended as part of the agency action is not considered to be prohibited taking under the ESA provided that such taking is in compliance with the terms and conditions of this incidental take statement.

The measures described below are non-discretionary and must be undertaken by the MCAS for the exemption in section 7(o)(2) to apply. MCAS has a continuing duty to regulate the activity covered by this incidental take statement. If MCAS fails to assume and implement the terms and conditions, the protective coverage of section 7(o)(2) may lapse. In order to monitor the impact of incidental take, MCAS must report the progress of the action and its impact on the species to NOAA Fisheries as specified in the incidental take statement.

Incidental takes of any marine mammals are not authorized under this ITS. If the MCAS believes such takes may occur, an incidental take authorization under Marine Mammal Protection Act (MMPA) Section 101 (a)(5) is necessary. In this regard, please contact Ken Hollingshead of our Headquarters Protected Resources staff at (301) 713-2055.

Amount or Extent of Anticipated Take

Based on stranding records and historical data, four species of sea turtles (loggerhead, green, Kemp's ridley, and leatherback) are known to occur in the action area. Based upon maximum density estimates of the turtle species in Pamlico Sound, estimates of total ordnance quantities to be delivered during a year, and intensity of live ordnance explosions provided by MCAS, NOAA Fisheries has determined that there is a quantifiable expected impact to sea turtles in the area as a result of the bombing range activities. Therefore, pursuant to section 7(b)(4) of the ESA, NOAA Fisheries anticipates an incidental take as follows:

- 1 take (injury or mortality) over a 10-year period of any sea turtle species by boat impact.**
- 1 take (injury or mortality) of any sea turtle species by direct hit from ordnance over a 10-year period from the date of this Opinion.**
- 3 takes (mortality by extensive lung hemorrhage, etc.) per year as a result of concussive force injury from the explosion of live ordnance. Only one may be a Kemp's ridley, and one a leatherback, with the remaining being any combination of the other 2 species.**
- 1 take of any species per year in the form of slight (recoverable) lung or other injury as a result of the concussive force of live ordnance explosions.**
- 21 takes of any species per year in the form of disruption of hearing-based behaviors/disorientation as a result of temporary threshold shift in hearing from the concussive force of live ordnance explosions.**

If the actual incidental take meets or exceeds any of these levels, MCAS must immediately

reinitiate formal consultation.

Effect of the Take

In the accompanying biological opinion NOAA Fisheries determined that the aforementioned level of anticipated take (lethal, or non-lethal) is not likely to appreciably reduce either the survival or recovery of Kemp's ridley, green, loggerhead, or leatherback sea turtles in the wild by reducing their reproduction, numbers, or distribution. The activity, therefore, is not likely to result in jeopardy to any of the above mentioned species. The project area has no designated critical habitat for any of the sea turtles, and therefore will not cause an adverse modification of critical habitat.

Reasonable and Prudent Measures

The following reasonable and prudent measures are necessary and appropriate to minimize impacts of incidental take of the Kemp's ridley, green, loggerhead, and leatherback sea turtles and to ensure no take of other species protected by the ESA under NOAA Fisheries' purview.

1. The MCAS shall have measures in place to limit the potential for interactions with ESA-listed species as a result of the proposed action.
2. The MCAS shall report all interactions with any ESA-listed species resulting from the proposed action.
3. The MCAS shall have measures in place to aid any individuals of an ESA-listed species which has been impacted by MCAS activities and is in a condition requiring assistance to enhance likelihood of survival.

Terms and Conditions

In order to be exempt from the prohibitions of section 9 of the ESA, MCAS must comply with the following terms and conditions, which implement the reasonable and prudent measures described above and outline required reporting and monitoring requirements. These terms and conditions are non-discretionary.

1. The MCAS must fully incorporate all of the "actions to reduce adverse effects" as proposed in the BA and described earlier in this Opinion.
2. The MCAS must have field staff trained to identify, measure, and resuscitate sea turtles (resuscitation guidelines attached), and they shall also check for and record external flipper tags. The MCAS staff will record the date, time, location, species, sex, straight and curved carapace measurements, condition, and final disposition of any turtles taken as a result of this activity. The MCAS staff will also tag all live turtles with external flipper tags, and will bring dead turtles to the North Carolina Wildlife Resources Commission for postmortem examination.

3. The MCAS must survey the training area immediately after an exercise has been completed to determine whether any protected animals have been injured or killed. Injured and/or unconscious animals must be rescued, and dead animals must be retrieved. Animals requiring resuscitation must be resuscitated and released per the attached resuscitation guidelines. Rescue and rehabilitation of injured animals must be in cooperation with appropriate agencies/organizations qualified to provide care for the animals.
4. The MCAS must send a report detailing any take of sea turtles or other protected species to NOAA Fisheries, Assistant Regional Administrator for Protected Resources, Southeast Regional Office, within 14 days of the incident (F/SER3, 9721 Executive Center Drive North, St. Petersburg, Florida 33702). This report will contain all of the information required in Term and Condition number 2 above.

NOAA Fisheries anticipates that no more than: 1 take (injury or mortality) per year of any sea turtle species by boat impact; 1 take (injury or mortality) of any sea turtle species by direct hit from ordnance over a 10-year period; 3 takes (mortality by extensive lung hemorrhage, etc.) per year as a result of concussive force injury from the explosion of live ordnance (only one being a Kemp's ridley, with the other two being any combination of the remaining 3 species); 1 take per year in the form of slight (recoverable) lung or other injury as a result of the concussive force of live ordnance explosions; and 21 takes per year in the form of disruption of hearing-based behaviors/disorientation as a result of temporary threshold shift in hearing from the concussive force of live ordnance explosions. The reasonable and prudent measures, with their implementing terms and conditions, are designed to minimize the impact of incidental take that might otherwise result from the proposed action. If during the course of the action this level of incidental take is exceeded, such incidental take represents new information requiring reinitiation of consultation and review of the reasonable and prudent measures provided. MCAS must immediately request initiation of formal consultation, provide an explanation of the causes of the taking, and review the need for possible modification of the reasonable and prudent measures. In addition, NOAA Fisheries emphasizes that all analyses provided in the BA and used for this Opinion are based upon current, average activities in the action area. Normal year-to-year variation is not expected to cause a significant difference in the expected impacts. If activities increase substantially in frequency or intensity, however, it would constitute a change in project scope and reinitiation would be required in order to consider the changed circumstances.

IX. Conservation Recommendations

Section 7(a)(1) of the ESA directs Federal agencies to utilize their authority to further the purposes of the ESA by carrying out conservation programs for the benefit of endangered and threatened species. Conservation recommendations are discretionary agency activities to minimize or avoid adverse effects of a proposed action on listed species or critical habitat to help implement recovery plans or to develop information.

1. At any point should the MCAS at Cherry Point cease being used for ordnance

practice and the waters become open for public use, the MCAS should make all reasonable efforts to clean up accumulated lead (bullets, etc.), as well as unexploded ordnance in the aquatic substrates. Additionally, MCAS should conduct monitoring of water and sediment quality at the target sites prior to opening the area to public use.

2. MCAS should have personnel trained in PIT tagging so that any rescued turtles can be PIT tagged prior to release. MCAS should consider requesting a section 10 permit for PIT tagging rescued sea turtles. MCAS should also consider obtaining a PIT-tag reader so that rescued sea turtles can be scanned for the presence of PIT tags.

In order for NOAA Fisheries to be kept informed of actions minimizing or avoiding adverse effects or benefitting listed species or their habitats, NOAA Fisheries requests notification of the implementation of any conservation recommendations.

X. Reinitiation of Consultation

This concludes formal consultation on the actions outlined in MCAS' letter and BA dated December, 2001. As provided in 50 CFR 402.16, reinitiation of formal consultation is required where discretionary Federal agency involvement or control over the action has been retained (or is authorized by law) and if (1) the amount or extent of taking specified in the incidental take statement is met or exceeded, (2) new information reveals effects of the action that may affect listed species or critical habitat (when designated) in a manner or to an extent not previously considered, (3) the identified action is subsequently modified in a manner that causes an effect to listed species or critical habitat that was not considered in the Opinion, or (4) a new species is listed or critical habitat designated that may be affected by the identified action. In instances where the amount or extent of incidental take is exceeded, any operations causing such take must cease pending reinitiation.

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Appendix 6

Final Draft Review Comments from the Florida State Clearinghouse

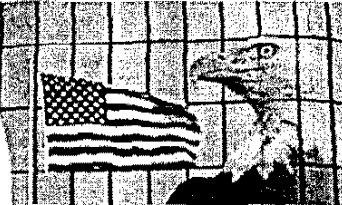
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Florida

Department of Environmental Protection

"More Protection. Less Process"



Categories

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Project Information	
Project:	FL200304241781C
Due Date:	MAY 24, 2003
Description:	DEPARTMENT OF THE AIR FORCE - PATRICK AIR FORCE BASE - FINAL DRAFT ENVIRONMENTAL ASSESSMENT, SEARCH AND RESCUE TRAINING BY THE 920TH RESCUE GROUP - PATRICK AFB, CAPE CANAVERAL AFS, TOSOHATCHEE STATE RESERVE AND AVON PARK AFR - BREVARD, ORANGE, POLK AND HIGHLANDS COUNTIES, FLORIDA.
Keywords:	USAF-PATRICK AFB-SEARCH AND RESCUE TRAINING-BREVARD, ORANGE, POLK
Program:	12.200
Agency Comments:	
E. CENTRAL FL RPC - EAST CENTRAL FLORIDA REGIONAL PLANNING COUNCIL	
The proposed project, as presented for review and when considered in its entirety, is consistent with the adopted Goals, Policies and Objectives of the East Central Florida Regional Planning Council.	
CENTRAL FL RPC - CENTRAL FLORIDA REGIONAL PLANNING COUNCIL	
No Final Comments Received	
ENVIRONMENTAL POLICY UNIT - OFFICE OF POLICY AND BUDGET, ENVIRONMENTAL POLICY UNIT	
nc	
COMMUNITY AFFAIRS - FLORIDA DEPARTMENT OF COMMUNITY AFFAIRS	
Released Without Comment	
FISH and WILDLIFE COMMISSION - FLORIDA FISH AND WILDLIFE CONSERVATION COMMISSION	
NC by Steve Lau 6-20-03	
STATE - FLORIDA DEPARTMENT OF STATE	
nc	
TRANSPORTATION - FLORIDA DEPARTMENT OF TRANSPORTATION	
Consistent; No Comments. LGS FDOT/D1	
ENVIRONMENTAL PROTECTION - FLORIDA DEPARTMENT OF ENVIRONMENTAL PROTECTION	
No comments. ser/6/23/03	
SOUTH FLORIDA WMD - SOUTH FLORIDA WATER MANAGEMENT DISTRICT	
Released Without Comment	
ST. JOHNS RIVER WMD - ST. JOHNS RIVER WATER MANAGEMENT DISTRICT	
Please note that an Environmental Resources Permit may be required for the proposed activities by the St. Johns River Water Management District, pursuant to subsection 40-C 4.041 (1), F.A.C. No construction (including clearing and other land alterations) or other works shall begin on the proposed project site until a permit is issued by the St. Johns River Water Management District, pursuant to subsection 40-C 4.041 (1), F.A.C., which states in part, "unless expressly exempt, an individual or general environmental resource permit must be obtained from the District under Chapters 40C-4, 40C-40, 40C-42, 40C-44 or 40C-400, F.A.C., prior to the construction, alteration, operation, maintenance, abandonment or removal of any dam, impoundment, reservoir, appurtenant work or works...?".	

For more information please contact the Clearinghouse Office at:

AGENCY CONTACT AND COORDINATOR (SCH)

COUNTY: ALL-2003-3693

SW-DBAF-PK

DATE: 4/24/2003

COMMENTS DUE DATE: 5/24/2003

CLEARANCE DUE DATE: 6/23/2003

SAI#: FL200304241781C

SR

CD ON SHELF

MESSAGE:

STATE AGENCIES	WATER MNGMNT. DISTRICTS	OPB POLICY UNIT	RPCS & LOC GOVS
COMMUNITY AFFAIRS	SOUTH FLORIDA WMD	ENVIRONMENTAL POLICY UNIT	
ENVIRONMENTAL PROTECTION	ST. JOHNS RIVER WMD		
FISH and WILDLIFE COMMISSION			
X STATE			
TRANSPORTATION			

The attached document requires a Coastal Zone Management Act/Florida Coastal Management Program consistency evaluation and is categorized as one of the following:

- Federal Assistance to State or Local Government (15 CFR 930, Subpart F). Agencies are required to evaluate the consistency of the activity.
- X Direct Federal Activity (15 CFR 930, Subpart C). Federal Agencies are required to furnish a consistency determination for the State's concurrence or objection.
- Outer Continental Shelf Exploration, Development or Production Activities (15 CFR 930, Subpart E). Operators are required to provide a consistency certification for state concurrence/objection.
- Federal Licensing or Permitting Activity (15 CFR 930, Subpart D). Such projects will only be evaluated for consistency when there is not an analogous state license or permit.

Project Description:

DEPARTMENT OF THE AIR FORCE - PATRICK AIR FORCE BASE - FINAL DRAFT ENVIRONMENTAL ASSESSMENT, SEARCH AND RESCUE TRAINING BY THE 920TH RESCUE GROUP - PATRICK AFB, CAPE CANAVERAL AFS, TOSOHATCHEE STATE RESERVE AND AVON PARK AFR - BREVARD, ORANGE, POLK AND HIGHLANDS COUNTIES, FLORIDA.

To: Florida State Clearinghouse

EO. 12372/NEPA Federal Consistency

AGENCY CONTACT AND COORDINATOR (SCH)
3900 COMMONWEALTH BOULEVARD MS-47
TALLAHASSEE, FLORIDA 32399-3000
TELEPHONE: (850) 245-2161
FAX: (850) 245-2190

☒ No Comment
☐ Comment Attached
☐ Not Applicable

☒ No Comment/Consistent
☐ Consistent/Comments Attached
☐ Inconsistent/Comments Attached
☐ Not Applicable

From:

Division of Historical Resources
Bureau of Historic Preservation

Division/Bureau:

Reviewer: S. Edwards

LAK 5/7/03

Date: 5/16/03

Jan Hatterson

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HISTORIC PRESERVATION

COUNTY: ALL

DATE: 4/24/2003

COMMENTS DUE DATE: 5/24/2003

CLEARANCE DUE DATE: 6/23/2003

SAI#: FL200304241781C

MESSAGE:

STATE AGENCIES	WATER MNGMNT. DISTRICTS	OPB POLICY UNIT	RPCS & LOC GOVS
COMMUNITY AFFAIRS	SOUTH FLORIDA WMD	X ENVIRONMENTAL POLICY UNIT	
ENVIRONMENTAL PROTECTION	ST. JOHNS RIVER WMD		
FISH and WILDLIFE COMMISSION			
STATE			
TRANSPORTATION			

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TALLAHASSEE, FLORIDA 32399-3000
TELEPHONE: (850) 245-2161
FAX: (850) 245-2190

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| | <input type="checkbox"/> Not Applicable |

From:

Division/Bureau: OPB Env
Reviewer: m J. Amey
Date: 6/5/03

RECEIVED

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MAY-20-2003 13:57
COUNTY: ALL

FDOT URBAN OFFICE

407 275 4188

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DATE: 4/24/2003

COMMENTS DUE DATE: 5/24/2003

CLEARANCE DUE DATE: 6/23/2003

SAI#: FL200304241781C

MESSAGE:

STATE AGENCIES	WATER MNGMNT. DISTRICTS	OPB POLICY UNIT	RPCS & LOC GOVS
COMMUNITY AFFAIRS	SOUTH FLORIDA WMD	ENVIRONMENTAL POLICY UNIT	
ENVIRONMENTAL PROTECTION	ST. JOHNS RIVER WMD		
FISH and WILDLIFE COMMISSION			
STATE			
X TRANSPORTATION			

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<input checked="" type="checkbox"/> No Comment	<input checked="" type="checkbox"/> No Comment/Consistent
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<input type="checkbox"/> Not Applicable	<input type="checkbox"/> Inconsistent/Comments Attached
	<input type="checkbox"/> Not Applicable

From:

Division/Bureau: FDOT

Reviewer: Betty Hickey

Date: 5/20/03

COUNTY: ALL

DATE: 4/24/2003

COMMENTS DUE DATE: 5/24/2003

CLEARANCE DUE DATE: 6/23/2003

SAI#: FL200304241781C

MESSAGE:

STATE AGENCIES	WATER MNGMNT. DISTRICTS	OPB POLICY UNIT	RPCS & LOC GOVS
COMMUNITY AFFAIRS			
X ENVIRONMENTAL PROTECTION	SOUTH FLORIDA WMD	ENVIRONMENTAL POLICY UNIT	
FISH and WILDLIFE COMMISSION	ST. JOHNS RIVER WMD		
STATE			
TRANSPORTATION			

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| <input type="checkbox"/> Not Applicable | <input type="checkbox"/> Inconsistent/Comments Attached |
| | <input type="checkbox"/> Not Applicable |

From:

Division/Bureau:

Reviewer:

Date:

at. Lutzger. Pr
Suzanne E. Ray
6/23/03